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COVER FOCUS

Understanding Data Center Equipment

Having a solid understanding of the technology in use inside your data center can go a long way toward making you a more savvy buyer and user. Here is information to help.

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The Processor.com home page is frequently updated with new articles and hardware news to help you keep current. Visit [www.processor.com](http://www.processor.com) today.

# Better Understanding Power Equipment

A Look At Some Top Issues & Strategies To Know

by Elizabeth Millard

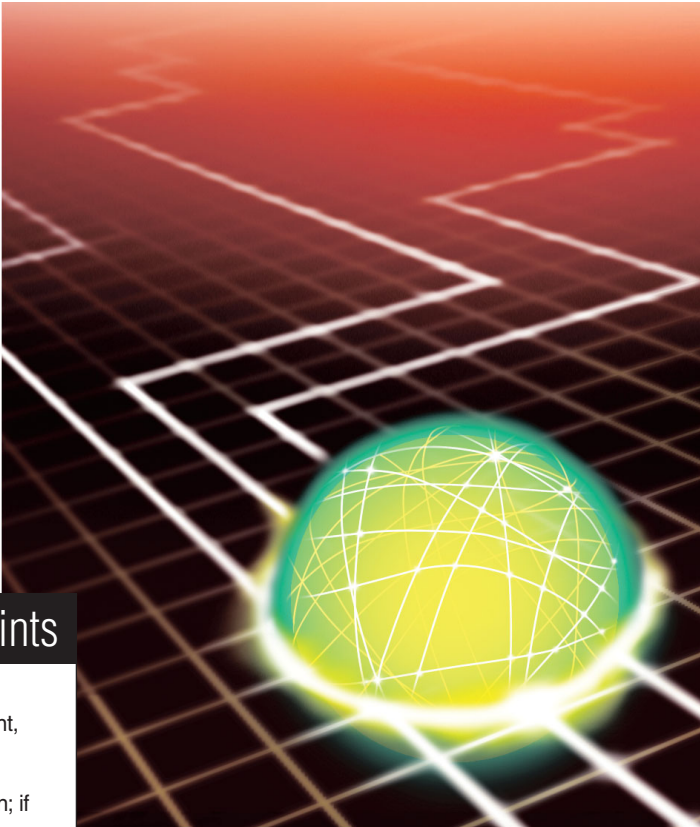
LIKE ANY data center technology, power equipment carries its own complexity and nuances. Understanding details such as power placement, monitoring, and proper sizing can go a long way toward keeping a data center running strong. Here are some top issues and strategies that can help enterprises stay powered up.

Power Placement

The single biggest challenge in power management is where to place power, notes Jon-Louis

Key Points

- Understanding where to place power depends on a data center's environment, data, and systems.
- UPS use is always a temporary solution; if key systems go down, there should be a generator or an alternate site available.
- Monitoring is crucial for detecting power-wasting devices and seeing trends in power usage.



Heimerl, director of strategic security at Solutionary ([www.solutionary.com](http://www.solutionary.com)). To meet that challenge, an enterprise needs to have enough information about the environment, data, and systems to understand

exactly what needs to be supported with power from a UPS and/or generators.

“To this end, you should evaluate your environment and identify your key systems, along with how long they could be unavailable before they had a measurable negative impact on your operations,” he says. “In terms of disaster recovery or business continuity planning, this would be considered a business impact assessment (BIA). The ultimate purpose of the BIA is to help determine the impact that an outage could have on your business.”

Different power solutions solve different problems, he adds. If an enterprise wants continuous power that doesn't fail, it will probably choose a UPS, with a generator as a backup system. “Your ultimate goal for power management should be to ensure that you have enough power to

run your critical systems as long as you need to run them,” Heimerl says.

For instance, if an enterprise needs to make sure an application server doesn't go  
*Go to Page 10*

# Should SMEs Be Using Cloud Storage For Primary Data?

Cloud Ideal For More Than Just A Data Repository

by George Crump

WHAT IF THE ENTIRE storage management process could be rendered as simple as installing a cable modem? Simply connect a box to your network and then connect it to the Internet, and limitless storage that automatically manages itself is yours. This is the promise of cloud storage when used for primary data in conjunction with a cloud storage controller, a new breed of storage appliance that aims to make the experience of using the cloud much like

using traditional onsite arrays but with cloud benefits.

Is this promise a reality for the SME? Can you really be using cloud storage for primary data?

Data Repository

Cloud storage is often thought of as a repository for data that is not currently being used, such as backup and archive data. It is no wonder that the bulk of the initial success has been around solutions

*Go to Page 10*

Key Points

- Cloud storage for primary data can reduce pressure on the backup and recovery process and automate much of the storage management process.
- Cloud storage provides a built-in disaster recovery capability that can be ideal for the SME market that lacks the resources to equip and maintain a secondary site.
- Be sure to find a cloud solution that's specifically tuned for your applications or environment.









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| 💧 Humidity    | 💡 Light         |
| 💧 Dew point   | 💧 Water leakage |
| 🌀 Air flow    | 🌫 Smoke         |
|               | ⚡ Power Failure |

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Upcoming IT Events

Are you looking to learn more about data center or IT topics? Network with some of your peers? Consider joining a group of data center professionals. If you have an event you'd like listed, please send an email to [feedback@processor.com](mailto:feedback@processor.com).

- JANUARY -

**PMP – Project Management Professional**  
Jan. 31, 9 a.m.  
Online Live  
[www.nhnorthflorida.com](http://www.nhnorthflorida.com)

- FEBRUARY -

**What's New In Exchange Server 2010**  
Feb. 1, 1 p.m.  
New Horizons Fort Worth  
4100 International Plaza  
Suite 200  
Fort Worth, Texas  
[tinyurl.com/NHFWorth211](http://tinyurl.com/NHFWorth211)

Feb. 2, 9 a.m.  
New Horizons Dallas  
150 W John Carpenter Freeway  
Suite 100  
Irving, Texas  
[tinyurl.com/NHDallas2211](http://tinyurl.com/NHDallas2211)

Feb. 3, 9 a.m.  
New Horizons San Antonio  
8200 IH-1- West  
Suite 500  
San Antonio, Texas  
[tinyurl.com/NHSanAntonio2311](http://tinyurl.com/NHSanAntonio2311)  
.....

**Central Plains ISSA**  
Feb. 4, 1 p.m.  
Wichita Marriott Restaurant  
9100 E. Corporate Hills Drive  
Wichita, Kan.  
[issa-cp.org](http://issa-cp.org)  
.....

**AITP Research Triangle Park**  
Feb. 10  
University Club  
4200 Hillsboro St.  
Raleigh, N.C.  
[www.rtp-aitp.org](http://www.rtp-aitp.org)  
.....

**AITP Oklahoma City**  
Feb. 15  
[aitpokc.org](http://aitpokc.org)  
.....

**AITP Southwest Missouri**  
Feb. 15  
[aitpspringfield.org](http://aitpspringfield.org)  
.....

**Central Ohio  
Cloud Computing User Group**  
Feb. 15, 6 p.m.  
Platform Labs  
1275 Kinnear Road  
Columbus, Ohio  
[www.platformlab.org](http://www.platformlab.org)  
.....

**Central Ohio VMware Users Group**  
Feb. 15, 8 a.m.  
Platform Labs  
1275 Kinnear Road  
Columbus, Ohio  
[www.platformlab.org](http://www.platformlab.org)  
.....

**PASS Minnesota**  
Feb. 15  
[passmn.org](http://passmn.org)  
.....

**AITP Omaha**  
Feb. 17  
[aitpomaha.com](http://aitpomaha.com)  
.....

**ISSA Northern Virginia**  
Feb. 17, 5:30 p.m.  
[issa-nova.org](http://issa-nova.org)  
.....

**SIM Minnesota**  
Feb. 17, 2:30 p.m.  
Northland Inn  
7025 Northland Drive N.  
Minneapolis, Minn.  
[www.simnet.org](http://www.simnet.org)  
.....

**AITP Akron-  
Outsourcing Data Center Operations**  
Feb. 22  
Akron, Ohio  
[www.akron-aitp.org](http://www.akron-aitp.org)  
.....

**AITP St. Louis**  
Feb. 24, 5:30 p.m.  
Crowne Plaza Clayton  
7750 Carondelet Ave.  
St. Louis, Mo.  
[stlouisaityp.org](http://stlouisaityp.org)

For more Upcoming IT Events, see page 11.

Record Results For Intel

According to its year-end and fourth-quarter financial results, 2010 was Intel's best year ever. The company banked net income of \$3.4 billion (up 48% annually) for the quarter and \$11.7 billion (up 167% annually) for the year, making the \$1.5 billion it recently paid Nvidia to settle all outstanding legal disputes—not to mention its earlier \$1.25 billion payout to AMD—look like pocket change. Earnings rang up as \$2.05 per share for the year, up 166% over 2009, and 59 cents per share for the quarter, an increase of 48% year over year.

DRAM Prices To Plummet This Year

It could be a cheap year to buy RAM, according to IHS iSuppli. Even factoring in the explosive growth of tablets and smartphones, DRAM memory prices could continue a plunge that started in the third quarter of last year. The research firm predicts that global DRAM revenue in 2011 will decline almost 12% to about \$35.5 billion, reversing a brief 2009 to 2010 rally. Economic uncertainty, a Q3 2010 drop in average selling prices of (and demand for) computers and other DRAM-using devices, bit growth, and high inventory levels are all factors in the memory price contraction, which could affect 2012 and 2013, as well.

IBM's 2011 Revenues Offer Positive Outlook

IBM has ended its fourth quarter and fiscal 2010 on a positive note, with net income that topped analysts' expectations. The company brought in \$29.02 billion in revenue for the quarter, ahead of the expected \$28.18 billion. Its net income rose 9% year over year, climbing from \$4.81 billion (\$3.59 per share) in 2009 to \$5.26 billion (\$4.18 per share); analysts had predicted per-share earnings of \$4.08. In addition, the tech company's gross margin expanded to 49%, a slight increase from 48.3% a year earlier. Looking ahead, IBM predicts adjusted earnings per share of at least \$13 for fiscal 2011, ahead of analysts' expectations of \$12.58 per share.

Cisco Announces PCI Compliance Survey Findings

Cisco and InsightExpress surveyed 500 IT decision-makers about the current opinion of the PCI DSS (Payment Card Industry Data Security Standard) since its initial deployment five years ago. According to the findings, 70% of the respondents cited that their companies are more secure with PCI compliance than they would be without the requirement. Currently, 85% of organizations are confident they would pass a PCI assessment; 78% passed former assessments. The top challenges respondents cited related to PCI DSS requirements include informing employees about how to handle cardholder data and updating old systems.

HP To Investigate Hurd's Departure

HP says it will commission outside lawyers to conduct an investigation into the departure of Mark Hurd, the company's former CEO. According to court papers regarding the issue, the investigation will inspect "circumstances surrounding the departure of Mark Hurd and the board's decision to approve the separation agreement between HP and Mr. Hurd." Those circumstances include allegations of sexual harassment and inaccurate expense reports. The investigation will also include scrutiny of Hurd's \$53 million severance package. Currently, Hurd is serving as co-president of Oracle.

AT&T iPhone Users Plan Verizon Switch

Now that Verizon will be offering Apple's iPhone, a recent survey reports that industry "churn" is on the rise, with many current customers planning to switch carriers. Researchers at Change-Wave found that about 4% of Verizon customers

plan to jump ship over the next three months, compared to 10% of Sprint's and 15% of both T-Mobile's and AT&T's subscribers. That's more than double the previous churn rate for AT&T, and much of it is attributed to the company losing its Apple iPhone exclusivity deal—in fact, 26% of AT&T iPhone users surveyed plan to switch to Verizon once the iPhone is supported there. Some 42% of AT&T users who plan to switch say that they're doing so because of reception and coverage issues with the carrier.

Forrester Makes 2011 IT Spending Predictions

Forrester Research expects global IT purchases to increase 7.1% this year, reaching an estimated \$1.7 trillion. Forrester points out that the growth rates will be similar to last year's 7.2% but that the market will shift from primarily hardware purchases in 2010 to software spending this year. IT spending in the United States is expected to grow by 7.5%, according to Forrester, but Latin America and Eastern Europe, Middle East, and Africa will have the highest growth rates of 9.8%. Western Europe and Central Europe will have the lowest growth rates, with an anticipated 4%.

Apple Receives Solar Patent

The U.S. Patent and Trademark Office has awarded Apple a patent covering solar power systems for mobile devices. The patented technology could be used to build a solar power system into an external charger or into a device such as a smartphone or tablet, which bodes well for users who have complained about inadequate iPhone and iPad battery life. Of course, receiving a patent does not mean that the company will build—or arrange to have another company build—the technology in question; Apple already owns other solar-related patents, and in fact was granted more than 560 patents in 2010 alone.

Survey Shows Enterprise Mobile Apps On The Rise

In its latest enterprise mobile app survey, Sybase found that a vast majority of the 250 IT managers (90%) surveyed plan to deploy more mobile applications at their companies this year. As for what's motivating the interest in mobile applications, 63% of respondents say cost cutting is a central motivation behind the new reliance on apps, 51% want apps to improve productivity, 50% claim that apps will meet employee needs or requests, and 43% consider apps a way to get a leg up on the competition. Other findings show that 82% of respondents want to host mobile apps in the cloud, and 56% of the sample indicated that adapting corporate data for use with mobile apps and devices is a big priority.

Worldwide Internet Use Survey

According to a survey from tech blog Royal Pingdom, nearly 29% of the 6.8 billion people in the world, or 1.97 billion, now have access to the Internet. That's a 14% increase over last year. Other impressive figures from the survey include 107 trillion emails sent on the Internet in 2010, making for an average of 294 billion emails per day in 2010, and there are 255 million Web sites as of December 2010, 21.4 million of which were added over the course of the year. Royal Pingdom also found that there were 152 million blogs, 600 million Facebook users, 25 billion tweets sent, 2 billion videos watched per day on YouTube, and 5 billion photos on Flickr in 2010.

RIM Losing Ground In Smartphone Market

The latest smartphone platform market share numbers from analytics firm comScore show that BlackBerry maker Research In Motion is losing ground while Google's Android platform is making gains. RIM was still top overall, with 33.5% of the market, but that number is down 4.1% from August 2010. Google had 26% of the market, up 6.4%, followed by Apple with 25% (up 0.8%), Microsoft with 9% (down 1.8%), and Palm with 3.9% (down 0.7%). Samsung led the list of mobile device OEMs, with 24.5% of the market, followed by LG,

Motorola, RIM, and Nokia. The recent analysis from comScore also looked at how subscribers are using their mobile phones: 67.1% send text messages, 35.3% use the browser, and 33.4% download apps.

Steve Jobs To Take Medical Leave

Steve Jobs, CEO of Apple, has announced that he will be taking a leave of absence for health reasons. Jobs has had a series of medical

issues of late, including pancreatic neuroendocrine cancer in 2004 and a liver transplant in 2009, but it is unclear at this time whether the leave is related to these past issues. There has been no clarification as to how long Jobs will be away, but he did say in a letter to Apple employees that he hopes to be back to work soon. Apple's COO, Tim Cook, will handle day-to-day operations during Jobs' leave.

Report Shows Mixed Sales For Computer Manufacturers

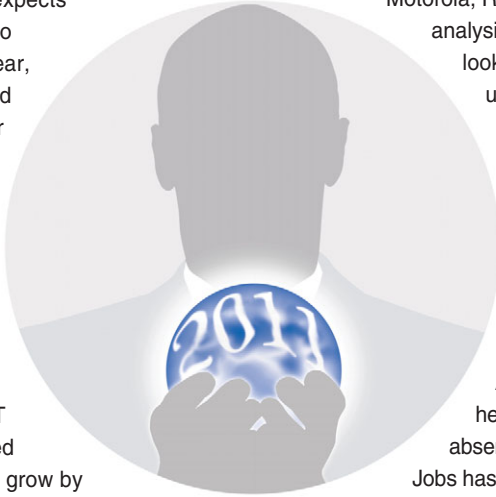
According to a recent Gartner report, Apple's sales are increasing faster than ever, while the PC market is still dominated by HP and Dell. Although PC manufacturers hold the top four spots in U.S. computer sales, both HP and Dell reported losses; Apple reported sales gains, however, grabbing 9.7% of the U.S. market in the fourth quarter, according to Gartner. Apple and Toshiba are the only computer manufacturers to post positive gain—Gartner reported the total U.S. market dropped 6.6% year over year. Gartner listed HP, Dell, Acer, Toshiba, and Apple as the top five sellers for the fourth quarter 2010.

Apple Posts Record Results

Strong holiday sales of iPads, iPhones, and Macs helped Apple post record sales and profits for the last quarter of 2010. Apple reported \$6 billion in net income for the quarter, an increase of 78% from the same quarter in 2009. Revenue rose more than 70% to \$26.74 billion, beating analysts' expectations of \$24.5 billion. Mac computer sales grew 22% to 4.1 million units, with laptop sales up 37% from the previous year. Apple sold 16.24 million iPhones during the quarter, an increase of 86% from the same quarter in 2009. iPad sales were up 75% from the previous quarter, with 7.3 million sold

Survey: Most Businesses Lack Recovery Plan

If your company is lacking a comprehensive disaster recovery plan, you're not alone: According to Symantec, only 43% of small businesses have a plan to cope with a network failure, data loss, or other disaster. More than half of the companies that lack a plan contend that they don't need one because they don't believe that computers are critical to business. The businesses polled experienced an average of six outages during 2010, caused mainly by cyber attacks, power failures, and natural disasters. The median cost of downtime is \$12,500 per day among those surveyed.





STATS & FACTS

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Cloud Taking Over, Slowly

If your enterprise isn't investing in cloud computing at least at some level, it probably should be. Need more proof? According to IDC, this year:

- 15% of IT revenue will be cloud-related
- Public cloud deployment will grow 30%
- Cloud providers will compete for dominant market position, trying to help enterprises move to the cloud

Forrester expects this shift to the cloud to change the overall security market.

- Cloud security will be a \$1.5 billion market by 2015, shifting from an inhibitor to an enabler of cloud services adoption
- During the next five years, we'll see trusted, highly secure cloud services emerge
- Security product providers will be challenged to revamp their architectures and solutions

Is Your Company A Top Employer?

Glassdoor.com, an online jobs and career community, released the findings of its third annual Employees' Choice Awards. The awards recognize "standout companies that have retained the support and commitment of their employees despite the tough economic climate," says Robert Hohman, co-founder and CEO.

The list is compiled via anonymous employee surveys, which look at factors such as work/life balance, career opportunities, communication, compensation and benefits, fairness and respect, employee morale, recognition and feedback, and senior leadership.

Top 10 Best Places To Work

Rank	Rating (out of 5)
1. Facebook	4.6
2. Southwest Airlines	4.4
3. Bain & Co.	4.3
4. General Mills	4.0
5. Edelman	4.0
6. Boston Consulting	4.0
7. SAS Institute	4.0
8. Slalom Consulting	4.0
9. Overstock.com	4.0
10. Susquehanna International Group	3.9

AMPS

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PRODUCT RELEASES

The *Processor* Product Releases section includes brief overviews of data center products.

All products listed have been released recently, so use this section to get up to date with what's new on the market and to find products you need.

Manufacturers:  
Do you have a new product that data center/IT managers would be interested in learning about?  
Send your press release or product information to [press@processor.com](mailto:press@processor.com).

PHYSICAL INFRASTRUCTURE

■ Black Box Auto-Sync Time Clock

Black Box announced the release of two models of its Auto-Sync Time Clock, a tool for providing automatic time synchronization and data storage to aid in compliance with industry regulations. The product offers a Web-based interface for easy configuration and management. The clock synchronizes to NIST or to an internal/external NTP time source.



■ Black Box Distribution-Style Fiber Cable

Black Box announced its 10 Gigabit, Laser-Optimized, 50-Micron, Distribution-Style Fiber Cable, available to customers in cut-to-length sections. The EXP10G006A and EXP10G012A cables support 10 Gigabit Ethernet applications up to 300 meters. Black Box recommends this cabling for LED or laser light sources.

■ Black Box Fiber Testing, Repair & Installation Products

Black Box introduced multiple products designed to help organizations test, repair, and install fiber. The Fiber Optic Optical Break Locator lets users determine distance-to-break testing; the Optical Time-Domain Reflectometers help users determine light loss; the Fiber Cleaver cleaves all 125-µm multimode or single-mode optical fiber; and four fiber termination kits let users strip, polish, crimp, and terminate fiber.

■ Black Box ServReach Power Reboot Pod

Black Box Network Services released the ServReach Power Reboot Pod to remotely power on, power off, or reboot connected devices. Users can control the ServReach Power Reboot Pod with the ServReach KVMCube KVMoIP. The Reboot Pod uses one interface to link units together, supports flexible power redundancy, and maintains infrared links between pods to provide a 0U footprint.

■ Cyber Switching csLinux 2011.01 Firmware Update

Cyber Switching released the csLinux 2011.01 firmware update for the ePower series iPDUs. The update includes the following enhancements: power measurement updates, Cisco EnergyWise v2.5 support (with individual outlet management), additional CLI targets, and CLI online help updates. Any ePower unit



purchased after Jan. 5, 2011, includes the 2011.01 update.

■ Device Technologies Spring-Fast Wire Protection Grommet Edging & Fast-Drop Fiber Management

Device Technologies' Spring-Fast Wire Protection Grommet Edging & Fast-Drop Fiber Management help protect critical electronic equipment from damaging environmental conditions such as chafing, abrasion, dust, moisture, extreme temperatures, and noise. Along with these two new products, DTI has a complete line of products fitting a broad range of profile shapes and sizes, including door seals, edge trim, specialty cable

management, braided cable sleeving, EMI shielding gaskets, thermal management, and RF absorber materials.

■ JouleX Energy Manager

JouleX announced version 2.5 of the JEM (JouleX Energy Manager). Functionality in version 2.5 extends JEM with the addition of JouleX Mobile, a patent-pending, location-based "smart" mobile application for a company's employees to manage the power usage of all their personal productivity devices, such as PCs, workstations, monitors, voice-over-IP phones, and printers.

■ Panduit Signature Core Fiber Optic Cabling System

Panduit announced the Signature Core Fiber Optic Cabling System, a multimode fiber communications system designed to offer the best reach and design flexibility possible and deliver performance exceeding 10/40/100Gbps Ethernet and



8/16Gbps Fibre Channel standards. The system is designed to be part of the comprehensive HSDT (High Speed Data Transport) Solutions.

■ Power Assure & Packet Power Data Center Monitoring & Measurement Solution

Power Assure, a data center infrastructure management solutions provider, and Packet Power, which makes wireless power-monitoring systems, have partnered to offer a complete and affordable



data center monitoring solution. Packet Power software gathers power, temperature, and relative humidity information from its wireless monitoring devices and then transmits that information to Power Assure's Dynamic Power Management software in SNMP format. Power Assure's Dynamic Power Management real-time analytics provides visibility into operations across facilities. The integrated solution provides a flexible and cost-effective way to view and manage energy use. For more information on this product, see page 7.

NETWORKING & VPN

■ Alacrittech ANX 1500

Alacrittech released the ANX 1500 network acceleration appliance, a device that the company says can dramatically improve the performance of network storage, while reducing the need for NAS devices. The ANX 1500 utilizes a patented NFS Bridge data caching technology to accelerate the performance of a storage network.

■ Apparent Networks CloudSmart For PathView Cloud Partners

Apparent Networks announced the release of CloudSmart, its managed service framework for PathView Cloud partners. CloudSmart offers remote performance management options, including monthly monitoring services, troubleshooting, and

regular reporting, the company says. PathView Partners can acquire the CloudSmart service framework for free.

■ Black Box VirtuaCore

Black Box announced the launch of its VirtuaCore desktop virtualization computer sharing system. VirtuaCore allows high-capacity processors to be used to serve multiple individual users, saving hardware, energy, and support costs. Aimed at classrooms, offices, and high-density cubicle locations, VirtuaCore also helps companies meet green initiatives by reducing their carbon footprint.

■ BMC Software Cloud Lifecycle Management

BMC Software announced its Cloud Lifecycle Management. The solution introduces a platform-agnostic Service Governor, which is a powerful tool that applies IT policies to automatically guide the initial placement and ongoing management of cloud services, rather than requiring manual effort. This solution is designed to support heterogeneity and prevent lock-in in both public and private cloud environments. Each cloud service can be sized upon deployment to accommodate different resource needs and scalability requirements.

■ Cisco Catalyst 3560-C & Catalyst 2960-C Compact Series Switches

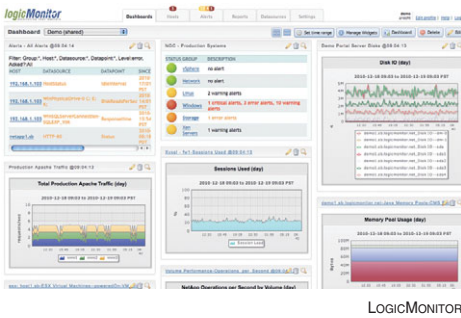
Cisco released the Catalyst 3560-C and Catalyst 2960-C Compact Series Switches as part of the Borderless Network portfolio. The switches are designed for spaces that pose wiring, power, or space challenges, and they work with a broad range of network environments, enable flexible device placement, and utilize pass-through PoE.

■ F5 BIG-IP Edge Client App & BIG-IP Edge Portal App

F5 released the BIG-IP Edge Client and BIG-IP Edge Portal apps in the App Store for the iPad, iPhone, and iPod touch. Appropriate for F5's BIG-IP Access Policy Manager, BIG-IP Edge Gateway, and FirePass, the new apps enable optimized mobile access for IT managers, contractors, employees, and others on the network.

■ LogicMonitor

LogicMonitor has added VMware hardware monitoring to its hosted data center monitoring solution, helping IT managers know the health of critical



VMware hardware components, including power supply, fans, disks, and temperature. The new release brings its VMware monitoring on par with capabilities already present for XenServer, NetApp, and other data center systems. Designed to simplify monitoring of complex IT infrastructures, the automated solution provides end-to-end visibility of the entire physical, virtual, and

cloud environment from a single window, letting IT staff quickly pinpoint the root cause of performance issues. LogicMonitor's escalating alert chains will proactively notify appropriate staff of any issues via cell phone, email, or SMS alerts. For more on this product, see page 23.

■ McAfee Enterprise Mobility Management 9.5

McAfee launched the latest version of its Enterprise Mobility Management software, which is a unified endpoint management platform. McAfee EMM 9.5 features integration with the McAfee ePolicy Orchestrator, an Enterprise App Store, improved support for iOS 4, PKI (Public Key Infrastructure) capabilities, and more.

■ Meru Networks Service Assurance Platform

Meru Networks released its Service Assurance Platform, which the company touts as the first secure "retail-ready" wireless LAN solution. The platform enables businesses to improve operations, reduce expenses, and streamline order fulfillment. Meru's Service Assurance Platform is aimed at the retail and warehouse environments, with a goal of delivering connectivity and mobility in unpredictable settings. The company says that the platform can support wireless applications for secure inventory location and management, and can result in CAPEX savings of up to 30% and OPEX savings of up to 50%.

■ New Boundary Technology Prism Suite 11.0

New Boundary Technology released Prism Suite 11.0. The latest release features the Prism Deploy, Asset Manager, and Patch Manager solutions all in one package. Prism Suite 11.0 also lets administrators and IT professionals create rule sets to manage installations and updates for multiple PCs.

■ Opnet AppMapper Xpert

Opnet released AppMapper Xpert, software available through SaaS delivery that automatically produces a run-time application map to identify the underlying application and infrastructure components that enable a production application, Opnet says. AppMapper Xpert is part of the company's suite for HD application performance management and uses data gathered from other offerings in the suite.

■ Smith Micro QuickLink Hotspot Manager

Smith Micro Software released the latest version of QuickLink Hotspot Manager, which is powered by the enabling technology of SODA (Secure On-Device API) 1.0. The integrated interface provided by the QuickLink Hotspot Manager client allows users to wirelessly connect to and manage their hotspots. The result is a better user experience across a range of devices.

STORAGE

■ ATTO Technology FastStream RAID Storage Controllers

ATTO Technology has released its FastStream RAID Storage Controllers, which are independent external RAID



PRODUCT RELEASES

storage controllers that provide 8Gbps Fibre Channel or 6Gbps SAS host connectivity for multiple tiers of SAS/SATA enclosures. According to ATTO, the SC 8550 controller is the highest performing in its class and features transfer speeds of 1,500MBps. The controller is engineered to run six streams of 10-bit uncompressed HD video or 30 streams of DVCPro HD video at once for up to four users without needing a switch. All of the Fast-Stream models ship with Advanced Data Streaming proprietary technology, as well as DriveAssure, CacheAssure, and MultiPath Director.

■ Buffalo TeraStation Pro Storage Solutions

Buffalo Technology launched the TeraStation Pro Duo, Pro Quad, Pro Rackmount, Pro 6, and Pro 8 network storage solutions. The TeraStation



Pro family comes equipped with Intel Atom D510 dual-core processors and runs Buffalo's SMB software suite. The TeraStation Pro 8 features eight populated storage bays starting at \$2,999.99. The TeraStation Pro 6 features six bays and starts at \$2,499.99. The TeraStation Pro Quad and Pro Rackmount feature four populated drive bays and will start at \$1,199.99 and \$1,699.99, respectively. The TeraStation Pro Duo features two drive bays and starts at \$599.99.

■ CRU-DataPort RAX

This series of 1U rackmount RAID and JBOD storage systems features trayless bays for easy drive insertion and removal. Options abound with your choice of interfaces, as well as cooling fans, hardware encryption, protective drive enclosure carriers, port multiplication, and more. Pricing starts at \$359.

■ Micron RealSSD C400

Micron released its RealSSD C400 notebook SSDs, which are based on the company's 25nm process technology. Using a 6Gbps SATA interface, the 64GB to 512GB RealSSD C400 series provides up to 260MBps write speeds (in the 512GB edition) and up to 415MBps read speeds. The drives come in 1.8- and 2.5-inch form factors.

■ Primera Technology Bravo 4100-Series

Primera Technology says that its Bravo 4100 series of disc printers and publishers is the fastest in its class. One highlight is the ability to print a full-coverage color disc label in just six seconds. Another is the series' separate ink tanks. Pricing begins at \$1,995.

■ QNAP TS-419U+ Turbo NAS

This full-featured rackmount NAS server is aimed at SMEs and workgroups. It sports four 3.5/2.5-inch SATA bays with hot-swappable drive carriers and support for up to 2TB drives, QNAP says. Its RAID options include types 6 and 5+ hot spare, plus online expansion and migration features.

SECURITY

■ Black Box Network Services Intelli-Pass Biometric Access Control For Cabinets

Black Box released its Intelli-Pass biometric access control system security for cabinets, which delivers reliable, accurate, multistage fingerprint identification. The bundled software monitors real-time status information, provides an access trail, and enables users to manage the enrollment and access of secure cabinets from a single desktop.

■ CipherOptics CEP10G

CipherOptics released the CEP10G, a 10Gbps network encryption appliance. CipherOptics says that it provides strong



protection of data at Layer 2, 3, or 4 without slowing down network speed or reducing availability. The CEP10G features Group Encryption and CipherEngine compatibility, the company says. Also, it's fast enough for applications that brook little latency, such as voice and multicast video, according to CipherOptics. The system will be available as a standalone, point-to-point solution or as part of a CipherEngine-enabled group encryption solution, the company says. General availability for the CEP10G will begin in June, although limited quantities should start to surface in April.

■ Codenomicon SNMP Trap

Codenomicon announced the latest edition of its security test suite called SNMP Trap. Designed to complement the company's other testing solutions, SNMP Trap helps Codenomicon cover more than 200 protocol simulations. Other recent releases include MPEG-2 streaming tests and Defensics 3.12.

■ FalconGaze SecureTower 2.1

FalconGaze announced its SecureTower 2.1 data leak protection software, which features the ability to manage and protect data using digital fingerprints. SecureTower 2.1 also lets users protect databases and supports Oracle, Microsoft SQL Server, SQL Lite, and Postgre SQL.

■ Imation Defender Collection Software Suite

Imation announced that removable storage tools are coming to its Defender Collection Software Suite. The newest update will let SMEs both manage data on removable storage devices and also encrypt the information. Using the software, users can also disable devices that are lost or stolen. Other solutions featured in the suite are the Defender Collection Control Server and Defender Collection Control Client, which handle the local, central data management and the removable storage management, respectively. The suite is one part of the complete Defender Collection series of data security and management solutions from Imation.

Go to Page 8

FEATURED COMPANY

Delivering PDUs Direct To You

Top Quality At The Lowest Price Available

by Blaine Flamig

• • •

**PREMIUM POWER DISTRIBUTION** without the premium price. Such a notion may sound too good to be true in today's sagging economy, but such an approach is precisely the customer-oriented mission PDUs Direct ([www.pdusdirect.com](http://www.pdusdirect.com)) was built on and continues to operate by.

As the online wholesaler of basic, metered, and switched PDUs from long-time PDU maker Server Technology's product line, PDUs Direct is dedicated to providing its customers the highest quality in-rack power strips, power distribution, and rack PDUs offered at best-in-class prices.

Established in November 2008 at the outset of the economic downturn, PDUs Direct understands the financial, cost-cutting challenges now facing SMEs. That's why PDUs Direct is committed to supplying its customers with industry-standard, industrial-grade PDUs suitable for network and server environments at prices falling 10 to 20% below competitors' online prices. PDUs Direct's customer commitment extends to the company's easy-to-use, uncluttered Web site, which makes locating the right PDU a quick, streamlined process without skimping on the pertinent product information customers require.

PDUs Direct's dedication to its customers is seen through its next-business

day shipping policy; 100% satisfaction, 30-day money-back product guarantee; and ultra-convenient email and live chat technical support options. Whether the question or concern is in regard to a product, order, or application, PDUs Direct's chat support pairs customers with live operators who possess years of real-world PDU experience and knowledge. Customers can even request a chat transcript for reference following a chat session.

PDUs Direct power distribution units are constructed in steel-case enclosures, available in a variety of outlet and power-level configurations, and ship with a customer-selected power cord. Each switched PDU sold also includes the latest firmware from Server Technology and fully networked outlet management and power and environmental monitoring abilities. ■

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INTEGRATED SOLUTION

NEW PRODUCT

by Rod Scher

A Simpler, Less Expensive Option  
For Environmental Monitoring

**YOUR DATA CENTER** is the backbone of your organization, but what do you really know about its environmental status? Do you know the exact temperature? The relative humidity? Have there been any power fluctuations from the baseline? Do you even have a baseline? If there's a sudden change in one of the environmental parameters, will you know about it immediately? Or will your first inkling of a problem be when the power goes out or your servers overheat and start shutting down?

Monitoring your data center's environmental status is a complex undertaking. It requires a sophisticated combination of complex software and precision hardware to continuously collect, organize, transmit, and report on power use, temperature, humidity, and other parameters.

Now, two industry leaders have joined forces to provide the ultimate in data center measurement and reporting tools: Power Assure, a data center infrastructure management solutions provider, and Packet Power, a producer of wireless power-monitoring systems, have partnered to offer a complete,

simple, and affordable data center monitoring solution.

Power Assure's Dynamic Power Management software collects power usage and temperature data from Packet Power's wireless monitoring devices, with the Packet Power software gathering power, temperature, and relative humidity information from its wireless monitoring devices and then transmitting that information to Power Assure in SNMP format. Power Assure's Dynamic Power Management helps improve operational efficiency and maximize available power and space by providing visibility into operations across facilities and providing continuous real-time analytics.

The integrated Power Assure/Packet Power solution, aimed at providing flexible and cost-effective ways to view and manage energy use, is available immediately from both companies. The combination is a powerful tool that, unlike some other options, requires no costly cabling or complex technical configuration, providing a simpler and less expensive alternative for data center environmental monitoring and data center optimization.





PRODUCT RELEASES

Continued from Page 7

■ Sentrigo Hedgehog Enterprise 4.1

Sentrigo released version 4.1 of its Hedgehog Enterprise database security suite, a database activity monitoring system designed for the enterprise. The latest release features enhanced support for Sybase and SQL databases in the suite’s DBscanner application. DBscanner now checks for nearly 4,000 potential vulnerabilities, including those that derive from the installation and setup of the database management systems.

■ Tenable Network Security Log Correlation Engine

Tenable Network Security announced its LEC (Log Correlation Engine) 3.6 management solution. The software is designed to analyze and report on logs and other events, and includes a Web-based management interface for analysis and reporting. Additionally, LCE 3.6 can work with or without the Tenable SecurityCenter.

■ Voltage Security & Merchant Link Comprehensive Security Solution

Voltage Security and Merchant Link have partnered to deliver point-to-point encryption, cloud-based decryption, and tokenization. The goal of the solution is to grant merchants the high performance of Merchant Link Payment Gateway coupled with the decryption and tokenization services of Voltage SecureData Payments.

■ XRoads Networks Edge2WAN

XRoads Networks, in a partnership with Webroot, announced its Edge2WAN “Cloud Firewall” platform. Edge2WAN is designed to fill the need for firewall security measures for cloud-based services and will provide security services for multiple Internet connections.

MESSAGING & TELEPHONY

■ Alteva Video Auto Attendant

Alteva released what it claims is the industry’s first on-demand video auto attendant, which gives companies the means to welcome customers with an interactive greeting, complete with routing options, to replace an automated receptionist. Users can thus dial into a company’s network and view a video stream vs. audio stream that offers further directions or instructions with graphical cues.

■ Sonasoft SonaVault

Sonasoft announced SonaVault, an email archiving tool designed to help companies improve email management and cut back on PST file proliferation across a company’s network. SonaVault is designed to work out of the box and grant SMBs more control over corporate email



while cutting costs and increasing simplicity. Features include PST file retrieval and archiving no matter the file location

without disrupting the network, which minimizes the load on Microsoft Exchange, and streamlined operational IT efficiencies. SonaVault also helps to ensure regulatory compliance, including Sarbanes Oxley and HIPAA.

■ Vertical Communications MBX IP

Vertical Communications released MBX IP, a converged IP telephony system for multisite small businesses. Utilizing a single scalable platform, the MPX IP system supports migration from existing MP-5000, FX-II, and XTS IP systems, the company says. It also meets demands for XTS IP, FX/MP, STS, and SBX IP endpoints. The system is designed for businesses with 50 to 240 users at up to 72 locations. Primary features include integrated voicemail, unified messaging, automatic call distribution, CTI integration with Microsoft Outlook, multi-party conferencing, call routing, VoIP trunking, one-touch call recording, and call screening.

SERVERS

■ iXsystems iX-2216-10G & iX-1204-10G

iXsystems released the iX-2216-10G and iX-1204-10G servers in response to the demand for 10GbE technology. The 2U iX-2216-10G and 1U iX-1204-10G feature an Intel 5520 chipset and support dual 64-bit six-core, quad-core, and dual-core Intel processors; up to 192GB DDR3 RAM; Dual Port Intel GbE controllers; and remote management.

■ Supermicro UP Platforms Based On The Intel P67 & Q67 Chipsets

Supermicro launched its next-generation, high-performance Uni-processor platforms based on the new Intel P67 and Q67 chipsets that are optimized for Intel 2nd Generation Core i7/i5/i3 processors.



The Supermicro C7P67 and C7Q67-based systems support a variety of leading-edge capabilities, including USB 3.0, SATA 3.0, and optional DOM.

CLIENTS

■ Eurocom Panther 2.0

Eurocom recently announced that its Panther 2.0 mobile workstation includes AMD’s HD6970M GPU and support for ATI CrossFireX. The support for HD6970M joins previous Nvidia GeForce and Quadro series options running in SLI or CrossFireX configurations. The Panther 2.0 is designed with a 17.3-inch HD screen and a choice of a quad- or six-core Intel i7-980X Extreme or Xeon 5500/5600 processor.

■ Fujitsu ScanSnap S1100

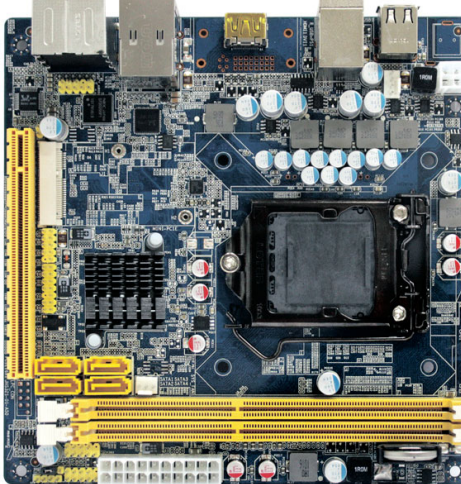
Fujitsu announced its ScanSnap S1100, a USB-powered portable scanner that lets users upload scans from a device to their PC or Mac, in addition to cloud services such as Google Docs or Evernote. Scans can also be imported to Word or Excel using the included software.

■ Fujitsu TP-X II PoS & TP-X II Coupé

Fujitsu made its TP-X II Point of Sale controller and TP-X II Coupé available to North American retailers. The models are available in a standard or compact Coupé size and feature a high-efficiency power supply with 80% certified efficiency, optional second hard drive and RAID controller, and smaller footprint counters.

■ Giada MI-H67 Mini-ITX Motherboard

Giada’s new MI-H67 Mini-ITX motherboard is perfect for a number of office and media applications, including building small, super-quiet systems for office-based or on-the-go training and presentations. The MI-H67 supports multiple CPUs, including Intel Socket 1155 Sandy Bridge Core i7, Core i5, and Core i3 processors, and it



includes the Intel H67 Express chipset. It can handle a maximum of 8GB RAM and offers one PCI-E 2.0 x16 and two MiniPCI-E Slots. The MI-H67 supports multiple GPUs and provides four SATA ports. The motherboard offers a Gigabit LAN controller, two back-panel Wi-Fi antenna apertures, and a total of 12 USB ports (eight USB 2.0 and four USB 3.0). For more on this product, see page 41.

■ HP Interactive Technologies

HP released several offerings designed for retailers to help their customers in multichannel retailing environments. The offerings include the HP Image Barcode Scanner, which reads 1D and 2D barcodes printed or displayed on mobile devices; the HP LD4201, HP LD4210, and HP LD4710 LCD Digital Signage Displays (42 to 47 inches); and the Independent Software Vendor program.

■ HP t5500 Series

HP launched a family of thin-client PCs and monitors aimed at enterprises. The t5550, t5565, and t5570 are intended for environmentally conscious enterprise users who are looking for desktop tools to enable Web browsing and virtualization. An HP spokesperson touts the products’ efficiency, reliability, and productivity.

■ Intermec 70 Series

Intermec has launched the 70 Series, its next-generation portfolio of ultra-rugged mobile computers. The CN70 is designed for field service, transportation and logistics, while the CN70e works best for direct store delivery/route accounting. The CK70 offers capabilities for parcel delivery in courier, express and postal operations. The CK71 is best for manufacturing and warehousing.

■ Kofax Enterprise Capture Platform

Kofax added enhanced abilities to its enterprise capture platform, which, the company states, add support for new applications and use cases; improve usability, system configuration, and administration; and enhance enterprise-class systems management and control.

The enhancements are tied to Kofax’s MarkView for Accounts Payable, VirtualReScan, Communication Server, Monitor, Capture, and Transformation Modules offerings.

■ Motion Computing Motion CL900

Motion Computing announced its ultra-light, rugged CL900 tablet PC. The tablet has up to eight hours of battery life; an IP-52 rated exterior; a Corning Gorilla glass display; and other optional features, such as WLAN, Bluetooth, and Gobi 3000 mobile broadband support. The CL900 comes in 30GB or 62GB SSD models and is available with up to 2GB of RAM.

■ NextComputing Radius

NextComputing reports that Intel’s Sandy Bridge processor family is now available in its Radius line of all-in-one portable workstations. The 32nm, second-generation members of Intel’s Core lineup incorporate on-die graphics, performance and power consumption improvements, and other architectural enhancements. Radius workstations will use Core i7 chips, NextComputing says.

■ Planar Systems Touchscreen Monitors

Planar Systems announced a suite of projective capacitive touchscreen monitors designed for PoS, PoP, and public access environments. Features include zero-bezel design, pure glass surfaces, driverless usability, and multitouch capabilities. They also come with a three-year, two-day advance replacement warranty to protect against downtime.

■ Rugged Notebooks MedTab

Rugged Notebooks recently announced a ruggedized tablet for the healthcare market that withstands drops to hard flooring, damage from bodily fluids and cleaning liquids, and more. Starting at \$2,549, the MedTab can be operated by touch or stylus, and can receive a legal patient signature. It has a 10.4-inch screen and weighs 4.1 pounds.

■ Samsung Central Station

Samsung released the Samsung Central Station, which is a unified desktop hub that connects notebook PCs, displays, peripherals, network, and AV, providing users with a simple and convenient way to increase productivity. Available in March, the Samsung Central Station will come in 23- and 27-inch wired and wireless configurations.

■ Veryant vCOBOL Enterprise

Veryant introduced vCOBOL Enterprise, a platform to migrate legacy COBOL applications off IBM mainframes as part of strategic cost-cutting, consolidation, and operational effectiveness initiatives. vCOBOL Enterprise supports transitions from the mainframe to affordable Unix, Linux, and Microsoft Windows systems by preserving the valuable business logic developed in long-standing COBOL programs.

SERVICES

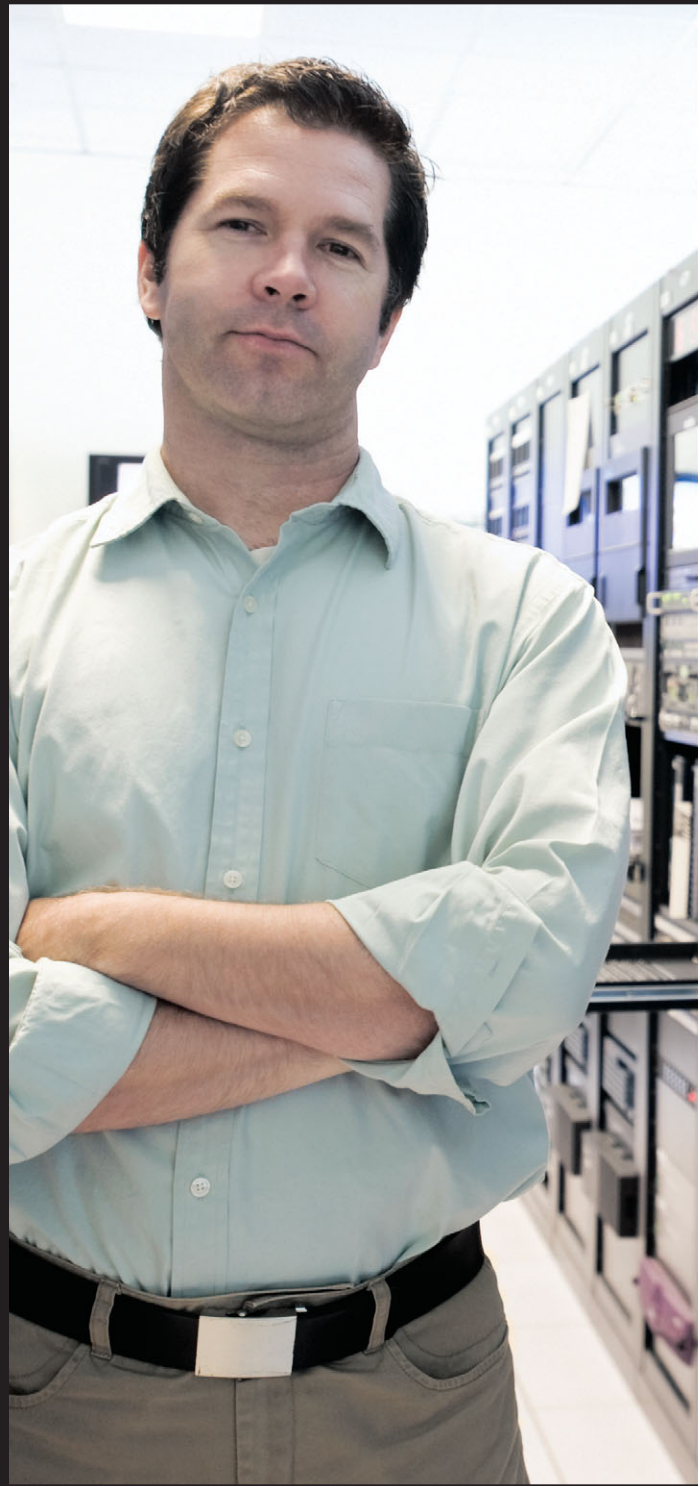
■ OPNET Cloud Readiness Performance Assessment

OPNET Technologies introduced its Cloud Readiness Performance Assessment, which is an application migration service for clients looking to take advantage of a cloud-based infrastructure. The service analyzes applications and their dependencies and employs proven methodologies and tools to predict how applications will perform when migrated to the cloud.

Do you have a new product that data center/IT managers would be interested in learning about?

Send your press release or related product information to [press@processor.com](mailto:press@processor.com).





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# Better Understanding Power Equipment

*Continued from Page 1*

down at all, then it should be supported with a UPS, as long as there’s sufficient capacity in that UPS to support key systems until power is restored, a generator is started, or an alternate site can supply power.

“Remember that a UPS is always a temporary solution,” Heimerl adds. “If your key systems could go down for some period of time, then you need to be able to either have a generator that can deliver enough power to run your systems or switch to an alternate site.”

### Size Wise

To properly size a power management strategy, an enterprise needs to know how many systems it has and what the power requirements are. Heimerl notes that it’s critical to consider peak power draw and duration of power.

“If, for instance, you’re supporting a call center with 20 PCs and each PC consumes 100 watts of power, you need a UPS that can support a draw of 2,000 watts of power just to run,” he says. “Consider, though, that those same PCs starting up, fans spinning up, [and] disk drives starting could draw 200 to 250 watts or more each, so, realistically, a UPS that can support 5,000 watts is more appropriate.”

That example doesn’t even include lights, phones, HVAC systems, and other power

needs. As a general rule, Heimerl believes that an enterprise may be better off with multiple smaller UPSes than with a single comprehensive one. Main power, UPSes, generators, and alternate sites are all part of a comprehensive solution, he notes.

### Monitoring Power

One of the most important parts of any power equipment implementation or management strategy is monitoring. Keeping track of how equipment is functioning isn’t a new concept, but there are still many data centers that aren’t using networkable cabinet PDUs to monitor, manage, and collect power data, according to Brandon Siri, senior marketing service representative at Server Technology ([www.servertech.com](http://www.servertech.com)).

“Power monitoring leads to increased uptime, maximizes rack space, lowers cost, increases efficiency, and provides a means to capture the information to calculate green metrics,” says Siri.

Along with monitoring the power on a cabinet PDU, environmental information can also be monitored using the same IP address that both master and expanded cabinet PDUs use. Monitoring can be synchronized with alarms and SNMP notifications based on user-defined thresholds, providing instant notification of problems within the cabinet.

To create an effective power monitoring strategy, it’s best to start by considering what’s being monitored and at what frequency, Siri notes. The various measurement points result in varying levels of accuracy and efficiency. The typical areas where power measurements are taken are at the facility level, UPS, upstream PDU, RPP (remote power panel), the infeed to the cabinet PDU, and at the individual outlet on the cabinet PDU for device-level measurements.

“The closer to the device that you measure your power, the more accurate it will be,” Siri says. “Outlet-level monitoring is the most accurate point to measure at within the entire data center.” He adds that frequency is also critical. Most data center managers want to constantly monitor power, but some opt for daily or even weekly monitoring.

“You really need to consider at what level of efficiency do you want to monitor, and analyze the cost benefit of being able to use all the available power and detect the power-wasting, comatose devices,” Siri says. “The realization here is that instantaneous device-level measurements will result in the most precise information and will reliably monitor the power running through the devices in the data center.”

When a data center manager has all the data, it’s helpful to consider using an

## Key Terms

- Alternate power, cold site:** An offsite recovery facility that contains basic data center functions without any systems. These sites provide power and basic network infrastructure, but no hardware, such as servers, for recovery.
- Hot site:** A recovery facility that has dedicated hardware that can take over data center operations immediately.
- PDU:** A power distribution unit is any device that distributes electric power and can vary in terms of voltage, plugs, and monitoring capability. PDUs can be “dumb,” meaning they have no instrumentation or management functions, or they can be “metered,” which means equipped with a display showing load information. Another option is “switched,” allowing part of the distribution to be switched on or off from a remote location.
- Warm site:** An offsite recovery facility that provides data center functions and some IT infrastructure like servers and networking.

application specifically geared toward trending and graphing power measurements over time, in order to see the flux in data center power. [P](#)

# Should SMEs Be Using Cloud Storage For Primary Data?

*Continued from Page 1*

that perform one of those two functions. Now, though, by using local storage as a cache and with some added intelligence, cloud storage is being considered for use as a primary storage area.

In fact, one advantage of using cloud as primary storage is that the need for separate backup and archive processes goes away. A file server that leverages the cloud essentially backs itself up via its replication processes, says Nasuni CEO Andres Rodriguez ([www.nasuni.com](http://www.nasuni.com)). “Local storage is essentially turned into a cache to provide excellent local performance to the users,” he says. Rodriguez explains: As users store data on the cache, it is replicated to the cloud. Once in the cloud, it is snapshotted so that older versions of files can be retrieved in case of deletion or file overwrite. Snapshots of cloud data can be preserved as long as the storage administrator would like. As the local cache fills up, old data is removed. If a user accesses older data that is not in the cache, it is automatically recovered for them from the cloud.

The result is that several major interruptions to an IT administrator’s day are now eliminated. First, any data that can leverage this cloud architecture can be removed from the backup process. Second, the management of local capacity is now automated. No need to decide between deleting old files and expanding hard drives. Finally, user recovery of old data is now transparent. “Even files that have been deleted can now be recovered via a right-click within windows,” Rodriguez says.

### Not Just File Services

Using cloud storage for primary data is not limited to file services. Ian Howells, chief marketing officer at StorSimple ([www.storsimple.com](http://www.storsimple.com)), says, “A local storage appliance can be used that has enough capacity for active data and then leverage the cloud for less active data. This appliance could then present block

storage via iSCSI that would allow certain applications like SharePoint and Exchange to use cloud storage. These applications in particular are ideal for a hybrid type of solution because they have a relatively small database that points to attached or related files. Those files quickly become inactive and are ideal for being stored only in the cloud.”

There are other advantages to an iSCSI gateway, says Nicos Vekiarides, CEO and co-founder of TwinStrata ([www.twinstrata.com](http://www.twinstrata.com)). “A key advantage of a gateway that provides iSCSI access is [that] you can use your own file system on that storage. For example, some administrators may want to use Windows for file serving, or others may want to use ZFS. iSCSI storage gives you the flexibility for both.”

Howells says the use of cloud storage on semistructured data such as email and collaboration relieves the IT administrator from tedious storage management tasks. All of the data is replicated to the cloud as it changes and then can be snapshotted for use later, he says, and the local storage automatically maintains the working set of data.

“There is no longer the need to add additional storage capacity or buy and install new storage systems. The cloud storage is automatically provisioned as the environment needs it. This also means the expense of costly system upgrades and the downtime they may bring is eliminated,” Howells says.

Not only does using cloud storage help resolve backup and storage management issues, it is also ideal for disaster recovery. Josh Goldstein, vice president of marketing and product management for Cirtas ([www.cirtas.com](http://www.cirtas.com)), points out that many SMEs don’t have the luxury of a second data center for offsite backups or disaster recovery.

“In these situations, cloud-based primary storage is ideal. Data is inherently offsite and accessible from anywhere. Should a disaster occur, a standby cloud

storage controller merely needs to be given access credentials to the data in the cloud, and all the company’s data for file services and key applications is immediately available,” Goldstein says. In a disaster recovery scenario, the cloud storage controller recovers data as it is being accessed, making the most effective use of Internet bandwidth.

One added benefit, Goldstein says, is that the failback to the primary data center after the disaster is easy. “Simply ‘remount’ the cloud with the cloud storage controller in the primary data center. No need to ship storage around the country or worry about copying all the data from a secondary site back to the primary,” he says.

### Complement The Environment

Howells says the key for successful use of cloud storage is a system that complements the environment. “Look for cloud storage solutions that are specifically tuned for a particular application or use case,” he says. “It should understand how to integrate into that environment. Today excellent use cases are data sets where a large amount of the capacity is inactive but there is a need to keep it close at hand just in case it is needed again. Specific examples include file servers, email, and group collaboration software,” Howells says.

TwinStrata’s Vekiarides says that IT administrators need to consider the flexibility of the appliance to meet application performance requirements. “Different applications have varying needs and service-level requirements. Some applications may have different working set sizes. Some may be more latency-sensitive, and some may only be able to use the cloud for background replication with a full local copy. Translation? The caching intelligence needs to vary across applications as each has different attributes. At the same time, the caching has to be dynamic so that it can address changing application

needs. A simple monolithic shared cache may not address these needs.”

When it comes to cost, Rodriguez says to make sure that the solution can provide space optimization capabilities such as deduplication and/or compression. “While you are paying as you go with cloud storage, you want to do everything you can to minimize costs over the long term,” he says. [P](#)

## Counterpoint: When Not To Cloud

- Cloud storage has plenty of benefits, including low startup costs and ease of growth and storage management, with the downside of an ongoing, often monthly, storage expense. But what if those benefits could be offered by local storage?
- Mario Blandini, senior director of product marketing for Data Robotics ([www.datarobotics.com](http://www.datarobotics.com)), believes that it can. “Cloud storage has its role, but much of how and when it is used depends on the user experience. One of the reasons its initial traction has been so strong in backup and archive is that those are ‘background’ tasks. Foreground tasks like production databases, rich media creation, and editing are not as well suited to that type of storage model today,” Blandini says.
- There is also the issue of cost. One of the values of cloud storage is that the storage you need does not have to be paid for upfront. With the cost of a 1TB server hard drive about \$100, storage is rather affordable, so enterprises need to be sure to conduct a long-term cost analysis. “If the simplicity of cloud storage can be had in a local shared storage system and work as part of an offsite backup solution, then it may make more sense to keep the storage in-house. In the end, a balanced use of both technologies may be the wisest decision for the SME,” he says.



# Inside Enterprise Storage

Today’s Storage Equipment Targets Every Potential Enterprise Need

by Christian Perry  
• • •

WITH ITS COMPLEX TAPESTRY of technologies, terms, and architectures, today’s enterprise storage market can be a tremendous challenge to grasp for the uninitiated. Even for data center and other IT managers who have experience with various storage equipment, it seems there’s always more to consider and more to learn. Gaining insight on the essential information on key storage equipment can go a long way toward ensuring that your storage environment is where it needs to be.

“Not all data is created equal,” says Gina Geisel, product marketing manager for LSI’s Engenio Storage Group ([www.lsi.com](http://www.lsi.com)). “There are various classifications of data and applications, each with its own specific requirements that dictate an organization’s storage approach. These data

Fibre Channel has since earned a strong reputation as a communication transport interface to connect servers to storage systems.

SATA and SAS, on the other hand, were designed as device interfaces for storage devices within systems or storage enclosures. “SATA was designed as a lower-cost, simple protocol for desktop and laptop hard drives and storage products. SAS was designed as a higher-performance, more robust error recovery interface for servers and storage systems,” Hagberg explains.

While SATA can deliver bandwidth speeds of up to 3Gbps, SAS can provide external transfer rates of up to 6Gbps, and the protocol has a roadmap to 12Gbps in the next few years, he adds. The high performance and efficient error recovery of SAS will help to phase out Fibre Channel as a hard disk drive interface in future storage and server designs, he says, and will relegate the technology to a box-to-box or server-to-storage system external interface.

Jeff Slapp, vice president of virtualization services at Host.net, notes that another major difference between hard drives using these interfaces is spindle speed, or the speed of the shaft that spins the platters holding data within the drive. Further, Slapp notes, SAS and Fibre Channel drives are more suitable for enterprise workloads than SATA drives due to their higher reliability.

“In terms of reliability and availability, FC and SAS drives both offer ‘dual porting,’ which allows them to be owned or managed by more than one controller,” says Jon Roberts, director of product engineering at Interxion ([www.interxion.com](http://www.interxion.com)). “This allows hardware multipathing, which can, in turn, improve availability metrics. Let’s face it, the important question is not if a disk will fail; it’s when.”

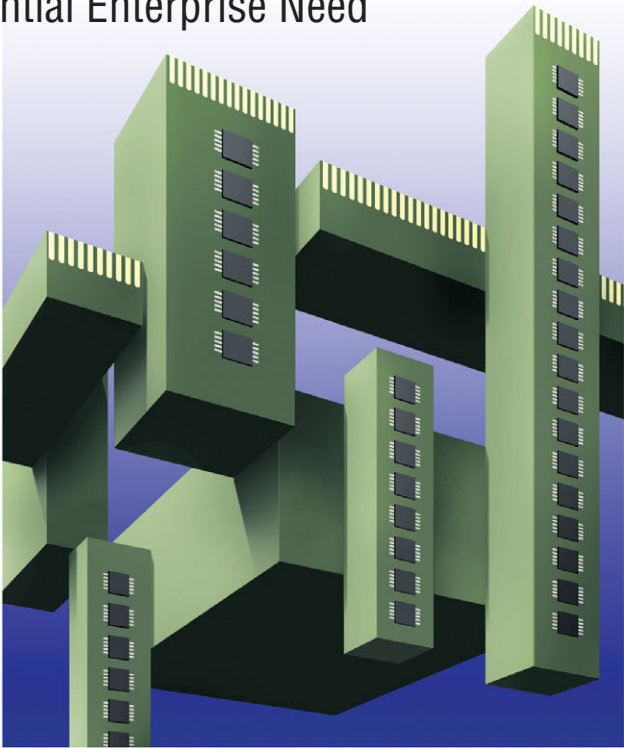
### SSDs On The Rise

A big trend in the storage realm is the move toward solid-state drives. According to Geisel, these flash memory devices can be used and managed like a conventional mechanical drive, but they deliver ultra-high performance for transaction applications and can therefore handle high period loads and deliver very fast response times.

“And with no moving parts, SSDs’ low power consumption coupled with increased I/OP [input/output processor] capability gives them a 10 to 100 times improvement in I/OPs per watt,” Geisel says. “This very high-performance flexibility and persistent storage make SSDs a smart choice for the most business-critical data in your organization. Just the use of several SSDs in a storage system can greatly improve response time.”

### Know Your Networking

Another major piece of the enterprise storage puzzle is networking. Technologies such as NAS (network-attached storage), SAN (storage-area network), and virtualization can help organizations boost the utilization of their various storage equipment depending on the various tasks at hand.



Slapp explains that a NAS device is essentially a hard drive with a network connection—a low-cost file server that lacks the high-end components typically associated with a standard server platform. A SAN, on the other hand, is a shared storage environment that can deliver raw storage volumes to multiple application servers simultaneously. SANs, according to Slapp, are generally very fast, reliable, and robust storage systems.

An associated technology that’s quickly growing in popularity is storage virtualization, which can provide just-in-time provisioning or thin provisioning of the total available storage in a system (such as a SAN).

### More To Consider

In addition to the various interfaces, networking, and drives, other storage technologies should also be on the radar of IT managers, Hagberg says. These include tiered storage, which uses a combination of SSDs and lower-cost hard disk drives to reduce costs while improving performance; deduplication, which removes redundant copies or file patterns to compress storage capacity; and SEDs (self-encrypting drives), which use hardware-based encryption on the fly to protect data. **P**

## Key Terms

**Fibre Channel:** This storage networking technology boasts transfer speeds similar to SAS and is used primarily to connect servers to shared storage devices.

**SAS:** Serial-attached SCSI replaced parallel SCSI as a bus used to transfer data to and from storage devices. SAS is popular among many enterprises due to its high performance at a midrange cost.

**SATA:** Serial ATA is an interface used for connecting host bus adapters to storage devices. Due to their lower cost and lower performance, SATA devices often are used for high-capacity requirements where high performance and reliability aren’t a must.

**SSD:** Solid-state drives deliver high performance with low power consumption, making them an increasingly popular option in enterprises. These pricey drives can be used in hybrid configurations that also use conventional hard drives.

## Key Points

- The wide variety of storage equipment types requires enterprises to accurately identify their storage needs so they can select the right devices for their environments.
- Storage interfaces not only vary in price, performance, and capacity support, but also in their ability to support environments that require high reliability and availability.
- Storage networking technologies such as NAS and SAN can help enterprises extract the highest possible value from their storage infrastructure by increasing storage utilization.

classes include business-critical information that must be quickly accessible; highly sensitive data that must be secured; and secondary data, such as reference data and fixed content, that must be retained by a company but is infrequently accessed and for which cost containment is key.”

According to Geisel, organizations typically have multiple storage types from which to choose after reviewing and evaluating their data, but determining the appropriate technology depends on several factors. For example, do you need the highest performance or the highest utilization? Are you seeking the best price for the capacity or a balance of price and performance? Other factors include the applications and workloads being placed on storage equipment, as well as the frequent or infrequent usage of data.

### Interface Insight

Data centers often use a mix of hard drive interfaces, depending on the type of tasks and data the equipment is handling. The most common interfaces include SATA (serial ATA), Fibre Channel, and SAS (serial-attached SCSI). Joel Hagberg, vice president of enterprise marketing for Toshiba America’s storage device division ([sdd.toshiba.com](http://sdd.toshiba.com)), notes that legacy mainstream parallel interfaces such as PATA and SCSI have shifted to these higher-performance and more streamlined serial protocols. Fibre Channel was the first example of a high-performance serial interface, but it met some initial challenges due to its loop architecture and design support for long-distance communication. However, Hagberg says,

## Upcoming IT Events

For more Upcoming IT Events, see pages 4, 13.

**ISSA Metro Atlanta**  
Feb. 24, 6:30 p.m.  
SecureWorks  
One Concourse Parkway NE  
5th Floor  
Atlanta, Ga.  
[www.gaissa.org](http://www.gaissa.org)  
• • • • •

**Southern California Linux Expo**  
Feb. 25-27  
Hilton Los Angeles Airport Hotel  
Los Angeles, Calif.  
[www.socallinuxexpo.org/scale9x](http://www.socallinuxexpo.org/scale9x)

**- MARCH -**  
**Central Plains ISSA**  
March 4, 1 p.m.  
Wichita Marriott Restaurant  
9100 E. Corporate Hills Drive  
Wichita, Kan.  
[issa-cp.org](http://issa-cp.org)  
• • • • •

**AITP Research Triangle Park**  
March 10  
University Club  
4200 Hillsboro St.  
Raleigh, N.C.  
[www.rtp-aitp.org](http://www.rtp-aitp.org)  
• • • • •

**Cisco (ROUTE):**  
**Implementing Cisco IP Routing**  
March 14, 9 a.m.  
Online Live  
[www.nhnorthflorida.com](http://www.nhnorthflorida.com)  
• • • • •

**AITP Oklahoma City**  
March 15  
[aitpokc.org](http://aitpokc.org)  
• • • • •

**AITP Southwest Missouri**  
March 15  
[aitpspringfield.org](http://aitpspringfield.org)  
• • • • •

**PASS Minnesota**  
March 15  
[passmn.org](http://passmn.org)  
• • • • •

**AITP Omaha**  
March 17  
[aitpomaha.com](http://aitpomaha.com)  
• • • • •

**ISSA Northern Virginia**  
March 17, 5:30 p.m.  
[issa-nova.org](http://issa-nova.org)  
• • • • •

**SIM Minnesota**  
March 17, 2:30 p.m.  
Northland Inn  
7025 Northland Drive N.  
Minneapolis, Minn.  
[www.simnet.org](http://www.simnet.org)  
• • • • •

**AITP St. Louis**  
March 24, 5:30 p.m.  
Crowne Plaza Clayton  
7750 Carondelet Ave.  
St. Louis, Mo.  
[stlouisaitp.org](http://stlouisaitp.org)  
• • • • •

**Data Center World**  
March 27-31  
Mirage Hotel & Convention Center  
Las Vegas, Nev.  
[www.datacenterworld.com](http://www.datacenterworld.com)  
• • • • •

**AITP Akron-**  
**Tools For Deploying Windows 7**  
March 29  
Akron, Ohio  
[www.akron-aitp.org](http://www.akron-aitp.org)  
• • • • •

**ISSA Metro Atlanta**  
March 31, 6:30 p.m.  
SecureWorks  
One Concourse Parkway NE  
5th Floor  
Atlanta, Ga.  
[www.gaissa.org](http://www.gaissa.org)

**- APRIL -**  
**Central Plains ISSA**  
April 1, 1 p.m.  
Wichita Marriott Restaurant  
9100 E. Corporate Hills Drive  
Wichita, Kan.  
[issa-cp.org](http://issa-cp.org)  
• • • • •

**AITP Research Triangle Park**  
April 14  
University Club  
4200 Hillsboro St.  
Raleigh, N.C.  
[www.rtp-aitp.org](http://www.rtp-aitp.org)



## Study Shows Rare Earth Metal Supply At Risk

For the United States, the supply of rare earth metals could be in danger, says a recent report from the U.S. Department of Energy.

The DoE's report, called the "Critical Materials Strategy," explains how rare earth metals are used to create components such as PV films, magnets, batteries, and phosphors for clean energy products such as wind turbines, electric vehicles, solar cells, and energy-efficient lighting. The report notes that these four product types were the report's main focus because the DoE expects an increase in their deployment during the next 15 years.



Of the 14 rare earth elements examined, the report identifies dysprosium, neodymium, terbium, europium, and yttrium as the most essential to clean energy technologies—and the most endangered.

Currently, about 95% of the world's rare earth metal production is located in China, which also holds 36% of rare earth metal reserves. The United States maintains 13% of reserves, while other countries such as Russia and Australia oversee the remainder.

In 1999, China began imposing export quotas on rare earth metals. Since then, additional quota constraints have led to a 40% decrease in the number of exports leaving the country, and consequently, a shortage of rare earth metals for use in clean energy technologies. China recently stated that it plans to raise export taxes again early this year.

### The DoE Strategy

In a DoE news release regarding the Strategy, Secretary of Energy Steven Chu stated that ensuring reliable access to critical materials would help the United States lead in the new clean energy economy.

In response to the endangered earth metals, the DoE's "Critical Materials Strategy" also explores eight policy and program areas that could be used to lessen the threat of shortages. The policies and programs include research and development, information gathering, permitting for domestic production, financial assistance for domestic production and processing, stockpiling, recycling, education, and diplomacy.

The report outlines each of these policies and discusses their potential. In particular, recycling of rare earth metals may become more cost-effective as the materials are used in additional products and in greater quantities. The DoE plans to examine recycling process development and other recycling-related possibilities. An updated report highlighting the findings of such research will be published by the DoE at the end of this year.

In the meantime, the report suggests that the United States should increase its domestic extraction and processing of rare earth metals and also collaborate with international partners to increase the production of each material.

by Kris Glaser Brambila

# A Clear View Of Virtualization

## Understanding The Benefits & Drawbacks Of Virtualizing Storage, Applications & More

by Robyn Weisman

• • •

**VIRTUALIZATION IS A BUZZWORD** that's been tossed around so liberally over the past few years that there seems to be this assumption that everybody knows its meaning. "It's a word that's become overloaded," says Scott Morrison, CTO at Layer 7 Technologies ([www.layer7tech.com](http://www.layer7tech.com)). "We've been using it a lot throughout computing, and [each time] it means something a little different."

Morrison boils down the fundamental definition for virtualization as creating a layer between two different views of computing technology. "There is hardware, the sort of pure view of actual hardware, devices, and other physical stuff. And then the next view is the virtual view, which can essentially make better use of those underlying resources," Morrison explains.

Perhaps you already knew this, or at least had a sense about the basics of virtualization.

### Key Points

- Data centers generally focus on three types of virtualization: server, storage, and desktop.
- Ideally, virtualizing portions of your data center will lead to improved efficiencies in physical hardware, as well as cost savings from hardware consolidation and decreased power usage.
- Virtualization does introduce complexities and visibility issues to the data center, which makes planning and management of implemented systems necessary to realize virtualization's advantages.

After all, some forms of it, such as virtual memory, have been around for close to 40 years. But despite virtualization's seeming ubiquity, plenty of IT professionals still have only a fuzzy idea of what virtualization does, what advantages it offers, and what complexities it brings. So consider the forthcoming information as a primer of sorts that can give you a better understanding of the concept and not make you feel as though you just walked into "The Matrix."

### Abstractions & Efficiencies

David Marshall, founder of VMBlog.com ([www.vmblog.com](http://www.vmblog.com)) and an editor of "Virtualization for Dummies," describes the 20,000-foot view of virtualization as an abstraction layer. "It's no longer about a massive amount of servers or disks. You start to abstract away the underlying hardware and carve things out," Marshall says. "In server virtualization, you have underlying hardware chopped up multiple times into virtual machines (VMs), all of which think they are that underlying level of hardware."

These abstractions lead to efficiencies, says Nathan Coutinho, virtualization solutions manager at CDW ([www.cdw.com](http://www.cdw.com)). "On a grand scale, virtualization is all about trying to make data centers more efficient, trying to save money through those efficiencies, and making it easier to manage data center resources," Coutinho says. "Virtualization technology itself helps you do more with less by combining

multiple [IT] technologies together."

### Server & Storage Virtualization Basics

Server virtualization has probably had the most traction in data centers so far. "Its whole concept is the ability to take multiple physical machines and consolidate them onto one. Instead of running 100 physical servers in a data center, you could effectively run 100 VMs on 10 servers," Coutinho says. "Those 10 servers might be beefier servers, but you can run the same workloads in one-tenth of the space. From an efficiency and TCO standpoint, it's a huge power and cooling savings."

The primary cost for server virtualization (beyond hardware refreshes, which happen every three to five years) is the cost of software. Although free virtualization software is available, they lack the management capabilities and support that paid versions offer, Coutinho says.

Storage virtualization works in much the same way. "It lets you combine multiple storage units to make it look like a [single storage unit] so that you can move things around and use your storage more efficiently," even if you are using physical storage devices from different vendors, Coutinho says. Storage virtualization tends to be more popular in larger enterprises because of the cost of SANs, as well as the software needed to virtualize them, he adds.

### Client Virtualization Basics

Client virtualization comes in several forms, but the two that have the most relevance for the data center are application and desktop virtualization. "Both let you deliver applications and desktops to end users in a centralized, efficient manner," Coutinho says. For example, application virtualization lets data centers store an application centrally that end users can access via Citrix (in most cases), so that data center managers don't have to install the application on every PC.

Desktop virtualization has become trendy lately because so many data centers are rolling out Windows 7. "Desktop virtualization lets you effectively build a Windows 7 virtual image in the data center once and be able to blast that out to thousands of users simultaneously," Coutinho says. "You don't have to worry about people's laptops and desktops. You just give them a URL, they connect to a desktop, and they're done."

Morrison says a lot of organizations are buying into desktop virtualization because of the economies of scale and administrative efficiencies that result from leveraging it. "Centralized control means that [IT and data center managers] don't have to spend as much time going to individual workstations, which have been configured with all sorts of idiosyncratic stuff on them. Serving a consistent [disk] image from a central location is easier to maintain, back



up, and debug," Morrison says. Because the data center is powering out the desktop, an organization also saves money on the cost of client PCs, he adds.

### Virtualization Complexities

At first glance, virtualization comes across as a win-win situation for data centers. But Marshall points out that virtualization isn't just a matter of achieving a good consolidation ratio or reducing power consumption.

"In the old, physical world, an IT admin or a data center administrator could walk up to a machine and know [where] a machine is in the rack, how it's cabled, and what's on it. But with virtual machines, your environment is no longer static. Your VM could be on any rack on any [physical] server, which creates management complexities and visibility issues, especially when you need to troubleshoot," Marshall says.

In addition, data centers can potentially lose control of the procurement process when virtual machines, particularly servers, can be created with a simple right-click and copy of an existing VM. "That adds to the visibility problem because if you have 50 VMs spread throughout your infrastructure, you may lack a good way of knowing which ones haven't been updated, are no longer in use, or are not in compliance," Marshall says. "Therefore, you need proper controls in place" to handle the changes virtualization brings about. ■

## Key Terms

**Application virtualization:** The ability to push out applications to end users from the data center rather than loading those applications on each client desktop or laptop.

**Desktop virtualization:** The ability to push client desktops from the data centers that end users access via a URL.

**Server virtualization:** The ability to layer multiple software-based servers on top of physical hardware servers.

**Storage virtualization:** The ability to provide storage functionality across multiple physical storage devices, even when the physical hardware being used comes from different brands.



COVER FOCUS

# Encryption Decrypted

## The Ins & Outs Of Encoding Sensitive Data

by Phil Britt  
• • •

AS DATA MOVES from outside of an enterprise’s data center to authorized users on remote devices and to the cloud, the need for encryption continues to expand to protect sensitive company information and customer data.

Encryption changes data to meaningless strings of characters. So if an unauthorized person sees the encrypted data, he would not be able to read it without first decrypting it—converting it back to its original form using a decryption key.

### A History Lesson

When DES (Data Encryption Standard) originally came out in 1977, it used a 56-bit encryption key, but that was found to be too weak—it could be cracked in a few days with a fairly low-powered computer, according to Luther Martin, chief security architect for Voltage Security ([www.voltage.com](http://www.voltage.com)). By the mid-1990s, the encryption standard moved to 128 bits for some applications and 256 bits for others. Each additional bit doubles the possibilities of outcomes the hashing key can produce.

After numerous attacks against the DES standard in the late 1990s, the National Institute of Standards and Technology adopted the more robust Advanced Encryption Standard in 2001. Many enterprises, particularly those in the financial services industry, use “Triple DES,” or 3DES, which uses three hashing keys to encrypt the data three different times. Decrypting the data requires using each of the keys in reverse order to get back to the original data. Enterprises can apply encryption at the column level, application level, and file level or some combination thereof.

### Increasing Need For Encryption

Laptops or removable media such as tapes, disks, and portable drives have been a security concern, and therefore the subject of much of the encryption discussion, for many years. Additionally, the recent growth of virtualization and cloud computing has increased the need for encryption as entire machines—and the data within—can be

copied and moved from place to place inside an enterprise’s own virtual environment or in a cloud environment, making it relatively easy for a hacker or a person on the inside to steal thousands of files or more.

Another factor prompting the use of more encryption is the regulatory environment, with tougher laws and penalties for data breaches, particularly with the HITECH Act, which stipulated certain nationwide laws and penalties for entities covered under HIPAA. Encryption provides a way for companies to protect themselves

### Key Points

- Today’s encryption standards are more reliable than ever before.
- Encrypting your data will have little effect if you do not safeguard the decryption key.
- When establishing or updating encryption standards, consider the enterprise’s future needs rather than only looking at current concerns.

from liability in the event that information is lost or stolen.

“More and more cases of data breaches are being filed with attorneys general,” says Gretchen Hellman, vice president of marketing and product management for Vormetric ([www.vormetric.com](http://www.vormetric.com)). The publicity surrounding those cases and the demands of the HITECH Act are prompting IT workers to be more concerned about encryption than ever before.

Most common breaches have come from lost or stolen laptops, so some years ago, companies began encrypting many of those devices, according to Hellman, who says enterprises are at the “late early adoption” phase of such precautions.

### Slow Adoption

Even with the heightened security concerns, encryption has yet to catch on more widely mainly due to concerns over slower performance and the actual implementation of the precaution, Hellman adds. “It’s only a secondary concern in the data center compared to physical security, but with the recent WikiLeaks releases, you can see how damaging and how prevalent loss of information can be,” Hellman says. “There would have been no drama if the information [WikiLeaks obtained] had been encrypted. It wouldn’t have been usable.”

Citing SNIA (Storage Network Industry Association) guidelines, Brandon Hoff, director of security product management at Emulex ([www.emulex.com](http://www.emulex.com)), recommends that enterprises encrypt data at rest so that it minimizes the impacts to users, data availability, information and communications technology infrastructure, performance, throughput, and scalability.

Hoff adds that enterprises should perform data compression and deduplication prior to



encryption to realize the maximum data reduction benefits.

SNIA also recommends encrypting the data as close as possible to the point of generation. This helps ensure that data doesn’t become compromised prior to encryption, and Hoff agrees. “By encrypting the data inside the host, it is much harder to offload and you can offer much better key management,” he says.

### Key Management

Despite the strength of the encryption, the safeguard will do little good if the decryption key isn’t properly safeguarded.

Good key management is an essential element of PCI (Payment Card Industry) rules for data security, Martin adds. “Managing the key can be real tricky to ensure that only the right person has access to it,” he says. It does little good for an enterprise to encrypt information just to have key information in unsecured locations or to be susceptible to social engineering, in which an outsider can misrepresent himself as an authorized user through a voice call or an email and acquire the decryption key.

“No security technology is any good without good policy behind it,” adds Hellman, who recommends using two-factor authentication for decryption keys—using a physical token along with a password. “Companies can avoid serious encryption and key management problems later by adopting a strategy now.”

There are no specific standards for key management, but there are some established best practices. Hellman recommends controlling access by permitting only communications between trusted equipment for encrypting and decrypting, which should eliminate the potential for compromises via social engineering.

Hellman further recommends using a centralized key management system, eliminating the need for several different keys for encrypting different types of data.

### Looking Ahead

When establishing or updating encryption standards, IT professionals should look at the expected needs of the organization seven years from now, rather than just at current needs, advises Taher Elgamal, chief security officer for Axway ([www.axway.com](http://www.axway.com)).

“Encryption is an ongoing thing; it never stops,” Elgamal says. “What is secure today will not be secure five years from now; there will be breakthroughs in cryptology analysis. So you want your IT people to be on top of [encryption] developments.”

## Upcoming IT Events

For more Upcoming IT Events, see page 4, 11.

[AITP Oklahoma City](#)  
April 19  
[aitpokc.org](http://aitpokc.org)

[AITP Southwest Missouri](#)  
April 19  
[aitpspringfield.org](http://aitpspringfield.org)

[PASS Minnesota](#)  
April 19  
[passmn.org](http://passmn.org)

[AITP Omaha](#)  
April 21  
[aitpomaha.com](http://aitpomaha.com)

[ISSA Northern Virginia](#)  
April 21, 5:30 p.m.  
[issa-nova.org](http://issa-nova.org)

[SIM Minnesota](#)  
April 21, 2:30 p.m.  
Northland Inn  
7025 Northland Drive N.  
Minneapolis, Minn.  
[www.simnet.org](http://www.simnet.org)

[AITP Akron-Student Project Presentations](#)  
April 26  
Akron, Ohio  
[www.akron-aitp.org](http://www.akron-aitp.org)

[AITP St. Louis](#)  
April 28, 5:30 p.m.  
Crowne Plaza Clayton, 7750 Carondelet Ave.  
St. Louis, Mo.  
[stlouisaip.org](http://stlouisaip.org)

[ISSA Metro Atlanta](#)  
April 29, 6:30 p.m.  
SecureWorks  
One Concourse Parkway NE, 5th Floor  
Atlanta, Ga.  
[www.gaissa.org](http://www.gaissa.org)

**- MAY -**  
[Central Plains ISSA](#)  
May 6, 1 p.m.  
Wichita Marriott Restaurant  
9100 E. Corporate Hills Drive  
Wichita, Kan.  
[issa-cp.org](http://issa-cp.org)

[Interop](#)  
May 8-12  
Mandalay Bay Convention Center  
Las Vegas, Nev.  
[www.interop.com](http://www.interop.com)

[AITP Research Triangle Park](#)  
May 12  
University Club  
4200 Hillsboro St.  
Raleigh, N.C.  
[www.rtp-aitp.org](http://www.rtp-aitp.org)

[Cisco \(TSHOOT\): Troubleshooting and Maintaining Cisco IP Networks](#)  
May 16, 9 a.m.  
Online Live  
[www.nhnorthflorida.com](http://www.nhnorthflorida.com)

[AITP Oklahoma City](#)  
May 17  
[aitpokc.org](http://aitpokc.org)

[AITP Southwest Missouri](#)  
May 17  
[aitpspringfield.org](http://aitpspringfield.org)

[PASS Minnesota](#)  
May 17  
[passmn.org](http://passmn.org)

[AITP Omaha](#)  
May 19  
[aitpomaha.com](http://aitpomaha.com)

[ISSA Northern Virginia](#)  
May 19, 5:30 p.m.  
[issa-nova.org](http://issa-nova.org)

[SIM Minnesota](#)  
May 19, 2:30 p.m.  
Northland Inn  
7025 Northland Drive N.  
Minneapolis, Minn.  
[www.simnet.org](http://www.simnet.org)

[AITP St. Louis](#)  
May 26, 5:30 p.m.  
Crowne Plaza Clayton  
St. Louis, Mo.  
[stlouisaip.org](http://stlouisaip.org)



IE Losing To Firefox In Europe

Microsoft's Internet Explorer is no longer the top browser among European users, according to Irish research company Stat-Counter. Although some other researchers dispute StatCounter's findings, the company says that Firefox is now the most popular browser on the continent, with a 38.1% share, compared to IE's 37.5%. The



company says that IE lost market share mainly to Google's Chrome. IE is still the worldwide leader, with an overall market share of 46.9%, compared to 30.8% for Firefox and 14.9% for Chrome, according to StatCounter. Measuring Web browser use is an inexact science, though, and Web analytics researcher Net Applications has Internet Explorer with a large lead over Firefox in Europe, 45.4% compared to Firefox's 33.4%.

NetApp To Acquire Akorri Networks

NetApp, which specializes in storage systems, has entered into an agreement to buy Akorri Networks, which supplies data center management software. Although financial terms for the deal weren't made public, NetApp says it plans to pay cash for the transaction. NetApp says that Akorri's products, such as BalancePoint, will be useful for expanding functionalities in its OnCommand management software portfolio. BalancePoint offers IT administrators a way to troubleshoot, optimize, and manage service in both physical and virtual environments.

Oracle Sued Over Alleged Conspiracy & Theft

Texas-based 2FA Technology has filed a \$110 million lawsuit against database company Oracle, its former partner, and Passlogix, an Oracle subsidiary, for corporate theft and conspiracy. The software company claims that Oracle ignored Passlogix's theft of trade secrets, including pilfering of source code for authentication and credential management software. 2FA says Passlogix caused it to lose millions in royalties and forced the company to file bankruptcy. The suit against Oracle comes after a federal jury awarded the company \$1.3 billion over a case involving copyright theft by SAP.

Network Security Software Market Grows Faster Than Hardware

The software market for network security will grow at a faster rate than hardware, according to a recent IDC study. IDC predicts that software-based network security will make up 26% of the market by 2014. However, hardware-based appliances will still garner most of the network security revenue this year, with revenue expected to be \$6.58 billion. This year, IDC says, the expected growth level will return the global network security market to pre-recession levels. Total revenue is forecast to be \$8.16 billion this year, which is 8.11% higher than 2010 revenue. 2009 saw revenues drop almost 1% from 2008 with industry revenues totaling \$7.16 billion.

# Why Go Modular?

## Scale & Flexibility In Data Center Design

by Jean Thilmann

SOME INDUSTRY INSIDERS SAY that a modular approach to building a data center is the way of the future. What exactly is the modular approach? And which really is better, modular or traditional data center construction? The answer, of course, depends upon who's asking.

With a modular data center, construction is phased in to accommodate growth without interruption to the existing data center's IT operation, says Lex Coors, vice president of the data center technology and engineering group at Interxion ([www.interxion.com](http://www.interxion.com)), which provides colocated data centers and managed services. In other words, the data center will be built in phases, to grow as the enterprise grows. It scales with the enterprise.

Long-Range Plan

In a data center built in the traditional way, phase-in isn't incremental. The data

the modular project could require constant, ongoing work. And modular building approaches need the same type of long-range plan and oversight used for traditional builds, he adds.

Capacity planning, for instance, can't go out the window with the modular approach. After all, IT managers will need to keep a close eye on growing IT needs. Those who choose this approach need a good capacity-planning tool. They'll also need well-negotiated contractual procurement agreements that can take them through the entire modular build, Coors says.

Built Offsite

Enterprises looking to phase in data center growth often turn to one means of modular construction: the offsite construction of the actual buildings, says Sam Tikriti, vice president of ModSpace's design and build division ([www.modspace.com](http://www.modspace.com)).

Key Points

- Modular builds allow enterprises to scale data centers as needed.
- In a data center built in the traditional way, phase-in isn't incremental.
- The modular approach can be less expensive than traditional construction because fewer building materials are needed up front.

through holes made during the buildings' manufacture. Or, buildings can be wired individually. This option is a good choice if an enterprise knows it will only need a few modular buildings.

These data centers are outfitted like any other data center, including raised floors, cooling equipment, and needed

“What’s unique about modular construction is that while the building foundation and site infrastructure is ongoing on the job site, the building is being fabricated offsite. So these things happen concurrently and end up resulting in significant savings; 50% of savings on some projects.”

- ModSpace's Sam Tikriti

center is constructed to accommodate the future business needs projected by enterprise executives, Coors says. “On day one, all infrastructure, equipment, and space are built-out to support the current and future needs for space and technical infrastructure,” he says.

This is compared to modular data center design, where the total space eventually needed is split into several phases. So phase one can be built independently, without the need to install all the equipment for future requirements, Coors says. “A phased approach to building or adding to a data center allows companies to expand on an as-needed basis, based on what it needs at the moment, thereby avoiding wasted space,” Coors adds. Additionally, modular design allows a data center to expand without service interruption and allows enterprises to bring in the most up-to-date technology with each phase, Coors says.

This approach can also help optimize the data-center cash flow and energy efficiency by expanding space, power, and cooling to suit an enterprise's immediate needs. In turn, it optimizes a data center's power usage effectiveness, or PUE, reducing its carbon footprint, he adds.

Drawbacks to modular design do, of course, exist. Because expansions occur in phases, each section may not have the same technology advancements as older sections, Coors says. Although not always the case, the capital expenditure for the modular project may be higher than for a one-build data center because

“What’s unique about modular construction is that while the building foundation and site infrastructure is ongoing on the job site, the building is being fabricated offsite,” Tikriti says. “So these things happen concurrently and end up resulting in significant savings—50% of savings on some projects.”

The modular building is fully fabricated in a manufacturing center and can be shipped to the site and connected to other buildings. If an expansion is called for in the future, another modular building is brought onsite, he says. With this modular building approach, enterprises can expand and contract their data centers fairly quickly, and at will, he adds. “It's kind of like a building-block concept. You can add or take out blocks as you wish,” he says.

The wiring issues unique to data center builds are dealt with in one of three ways, Tikriti says. Wiring can be installed onsite and run through all the connected modular buildings. Or, the wiring can be coiled at one end of the modular building during its construction. Then, once onsite, the wiring is run

insulation, he adds. They're built to specifications provided by the enterprise.

Management Is Key

This approach to modular building—simply bringing in another building when needed, involves less site disturbance than a traditional build. Because less work is done onsite, the cost is lower, as well, Tikriti says.

Also, the modular units can be used as temporary data centers in locations where a data center is needed for only a short time. They've been sited in parking lots while an existing building is being renovated, for example, Tikriti says. They can also be hauled to desert or hilly areas where traditional construction might be difficult or it could be expensive to bring in building materials.

But, the two construction types—modular or traditional—do have one important element in common. “Without good project management, you'll have the same drawbacks,” Tikriti says. So, whether modular or traditional, the usual methods of planning and overseeing the project must be followed, he says. ■

Same Great Look

Because modular units constructed offsite can be finished with the same material used to finish traditionally built structures—brick, stucco, wood, and the like—employees wouldn't be able to distinguish a modular from a traditionally built data center, says Sam Tikriti, vice president of ModSpace's design and build division ([www.modspace.com](http://www.modspace.com)).



# Improve Data Center Build-Out Speed & Efficiency: Self-Contained Modular Data Centers Make Inroads

BY ROD SCHER

WADE VINSON IS AN ARTICULATE, personable fellow with an odd title: He’s a POD architect for HP. “POD architect” is HP’s term for a data center designer who specializes in self-contained, modular data centers such as those currently being designed and used by HP, Google, Microsoft, SGI, and others.

HP calls its modular centers PODs, short for Performance Optimized Data Centers. They’re built into industry-standard 20- or 40-foot shipping containers and sent off to customers, ready to go right out of the box. You get a fully implemented and populated data center in as little as six weeks—just add water, electricity, and network access, and your data center is up and running. Compare that to the two years it might take to design, build, and populate a standard data center from scratch.

The idea of modularized self-contained data centers has been around for a while; some companies have been building them for large customers (civilian and military) since the 1990s. The idea took off in earnest in 2005 or 2006, when designers began wondering whether data centers could keep up with surging power trends, whether they could be made more efficient, and whether it was possible to deploy multiple racks at one time on a large scale.

### Why Go Modular?

The big question is Why? Other than speed, what’s so compelling about a modularized data center? According to Vinson, it boils down to three things.

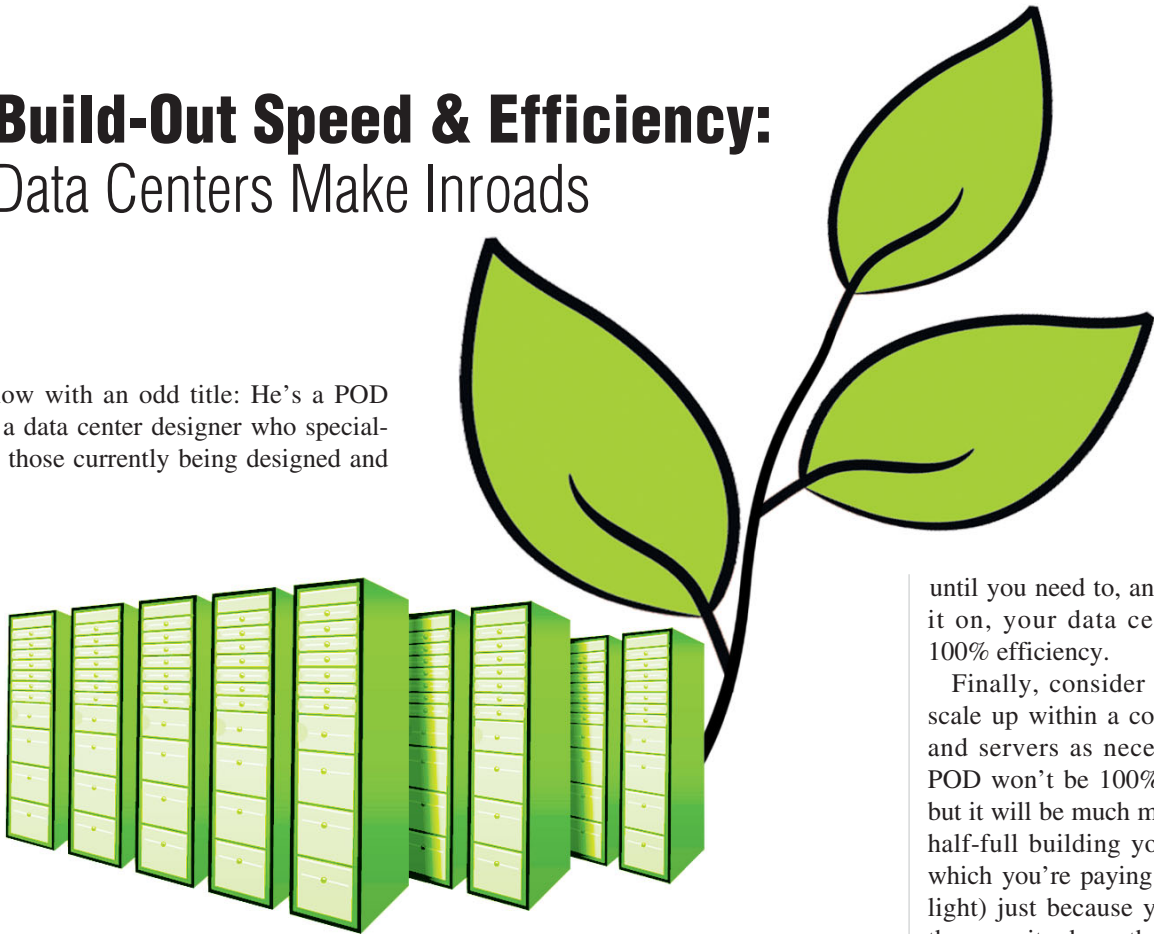
First, consider power and equipment density. A 40-foot HP POD can deliver 34kW of power to every rack. “The POD can accommodate five c7000 chassis per rack, which can each hold 32 servers,” Vinson says. “This equates to 160 servers per rack. The 40-foot POD has 22 racks, meaning it could contain up to 3,520 servers.”

Second, consider efficiency. A fully configured and utilized HP POD can deploy at a PUE of 1.25, compared to the PUE of 2 that’s typical of standard data centers. The POD can provide a power capacity of 700kW per square foot, giving you the equivalent of 5,000 square feet of data center space in a package measuring about 400 square feet. With a self-contained, prepopulated data center, you can deploy modules when you need them and at the right scale. The bottom line, quite literally, is that you don’t spend money

until you need to, and as soon as you turn it on, your data center is operating at 100% efficiency.

Finally, consider scalability. You can scale up within a container, adding racks and servers as necessary. A half-empty POD won’t be 100% efficient, of course, but it will be much more efficient than that half-full building you paid to build (and which you’re paying to heat and cool and light) just because you think you’ll need the capacity down the road. Of course, you can also scale out, adding more prepopulated data center units as and when needed.

By its nature, any process that is efficient is green. That is, anything you do in a way that consumes fewer resources than it might otherwise consume is by definition eco-friendly. A data center—whatever its provenance or design—that uses less energy and saves money is a good example of what we’ve come to call “green tech,” and you may find that a self-contained data center can save you dollars while it conserves kilowatts. ■



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# Kyoto Cooling

Technology Cools Data Center Using A Heat Exchange System

by Dan Heilman

WHEN THE UNFCCC (United Nations Framework Convention on Climate Change) adopted the Kyoto Protocol in 1997, thus binding 39 industrialized countries to the ongoing reduction of greenhouse gases, few predicted that one of the byproducts of the agreement would be cooler data centers. But that’s been an indirect result of the battle against global warming, as the idea of heat wheel cooling, sometimes called rotary heat exchange or Kyoto cooling, begins to gain traction in North America.

Heat wheel cooling takes advantage of outside air to improve cooling efficiency in data centers, thus reducing power bills. Proponents of the heat wheel say that by

using a rotary exchange wheel, half of which is exposed in the interior and the other half to the exterior of a building, the machine can carry hot air from inside a data center to the outside of the building, all the while keeping any contaminants out. Instead of introducing exterior air directly into the server room, the heat wheel briefly mixes the outside air and exhaust air, creating a heat exchanger.

Heat wheels have been used for years in industrial air conditioning, but their use in data centers is relatively new. Like air-side economization, heat wheels could produce significant energy savings by decreasing the need to use chilling units in data centers.

“The heat wheel concept is not new,” says Lex Coors, group VP for data center

technology and engineering at Interxion (www.interxion.com). “It dates back many years when it was used to heat up air rather than cooling it—they were called rotating air heaters.”

### Reduction In Power Use

The Kyoto wheel, however, is seen by some as an improved form of the original heat wheel in that it almost completely separates outside air from inside air, making it a good fit for the cleanliness requirements of data centers.

The wheel runs between 13 and 20 feet in diameter. It’s usually set to turn at 3rpm, although it can run as fast as 10rpm. Ideally, the Kyoto wheel picks up tangible heat from the data center as it goes through half a rotation, and then it releases the heat into the cooler outdoors during the second half of its rotation.

According to data center power expert Bob McFarlane, of New York-based Shen Milsom & Wilke, the Kyoto wheel uses between 8 and 25% of the power used by equivalent mechanical cooling systems. In a major metropolitan area such as Chicago or New York, McFarlane says, a group of Kyoto wheels could supply total cooling to a 2.5-megawatt data center almost 300 days a year, using only about 9% of IT power for cooling.

Despite the mostly favorable reviews, Kyoto cooling has its skeptics. Some people see the size of the wheels as an obstacle: Some data centers would have to do major build-outs to accommodate the heat exchange system. Also, the number of days in the year when Kyoto cooling can effectively be used depends on a facility’s location and the time of year: During a summer in Arizona, for instance, you’re not going to want to bring in outside air to mix with what’s almost surely cooler inside air.

To others, Kyoto cooling smacks of overkill. Warren Mills, principal of Mesa, Ariz.,-based Afterburner Solutions (www.afterburnersolutions.com), says the technology might turn some IT folks off because it focuses on cooling the entire data center rather than just the equipment, something he compares to leaving a cold bottle of milk on a kitchen table in an attempt to cool the entire room. “One emerging trend is containers that cool only a rack or multiple racks, and not the entire room,” he says. “These are most often closed-loop solutions.”

Interxion’s Coors also points out that controlling humidity in a room with a Kyoto cooler can be difficult due to a

### Key Points

- Kyoto cooling, also known as heat wheel cooling, takes advantage of outside air to improve cooling efficiency in data centers, thus reducing power bills.
- In a major metropolitan area, a group of Kyoto wheels could supply total cooling to a 2.5 megawatt data center for almost 300 days in a year, depending on the data center’s location.
- Skeptics say that Kyoto cooling needlessly cools an entire data center rather than the specific components that need cooling.

constant percentage of outside air being introduced into the data center. “This has to be compensated for with additional humidification,” he says.

### Kyoto Comes To Montana

The Dutch company KyotoCooling is understandably bullish on the technology. But Mees Lodder, CEO of KyotoCooling, sees the technology as gospel to be spread as much as a product to sell. “We’re trying to entice innovators from around the world, so that this type of cooling technology catches on in every country,” he explains.

Lodder says the primary idea is to keep the heat in data centers under control, and to do it in the most efficient way, so no matter what happens, the power and cooling are available 24/7. “By doing that, you’re in better control of the technology in the data center, because you don’t have the elements interrupting the data center’s primary functions,” he says.

Kyoto cooling has caught on in North America in Montana, where the state has installed cooling wheels in its new \$7.2 million data center. Montana is an ideal setting for the technology due to its moderate temperatures.

Dick Clark, Montana’s chief information officer, told the Helena, Mont., *Independent Record* that typical data centers incur anywhere from 50 cents to \$1.50 in cooling costs for every dollar of electricity the cooling system uses. Montana’s new system, meanwhile, can reduce the cost to as little as a nickel for cooling each dollar’s worth of energy.

Lodder says that’s the sort of figure that anyone can understand when considering a Kyoto cooling system.

“The bottom line is that the energy savings from these wheels are significant, and that’s what gets people’s attention,” he says. “Money talks.”

“One emerging trend is containers that cool only a rack or multiple racks, and not the entire room. These are most often closed-loop solutions.”

-Afterburner Solutions’ Warren Mills

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The city of Zurich, Switzerland, utilizes a Kyoto cooling system, which uses heat wheel technology. The 9 megawatt hybrid system uses chilled water adiabatic closed loop dry coolers connected to water-cooled chillers outfitted with compressors. Shown here are the adiabatic dry coolers.



BUYING GUIDE



BUYING TIPS:  
KVMs

by Nathan Lake

ENTERPRISES THAT HAVEN’T looked at KVM switches in a while may be surprised by the rapid advancements, including built-in IP connectivity that lets admins use one keyboard and mouse from anywhere in the world to control up to hundreds of servers. Improvements have also been made to the number of computers you can control, the maximum resolution, and number of people that can use the KVM at the same time.

**KVM over IP.** Using the TCP/IP Internet infrastructure allows KVMs with IP to manage and control servers from anywhere using an Internet or LAN connection. According to a spokesperson from Trendnet ([www.trendnet.com](http://www.trendnet.com)), “Network administrators who get calls at odd hours can now jump on any Internet connection instead of having to go to the

Buyers’ Checklist

- ✓ **Do you need** a KVM with remote access capabilities?
- ✓ **Will you want** a KVM with an OSD to save time managing and operating the switch?
- ✓ **Do you need** to control a large number of servers in a small area, and are there so many that you’ll need to be able to cascade several KVM switches?
- ✓ **Will the KVM switch need** to be compatible with a variety of platforms?
- ✓ **How many servers and PCs** do you need to connect, and will you need to connect many more in the future?

actual server room to resolve an issue.” All the connected servers simply connect to the KVM, which features an RJ-45 Ethernet port that lets admins remotely (or locally) log in to the system via a Web browser. For security, the KVM over IP switch will utilize a few encryption protocols to keep the keyboard, mouse, and video data secure.

**On-screen display.** KVMs with an OSD provide a visible interface that lets admins manage switch features and perform other operations, such as initiating channel scanning, logging out of the KVM, or providing password authorization. The convenient controls offer a more intuitive way to use common KVM features than using a selector switch.

**Cascading.** Sometimes an enterprise needs to control more computers and servers than one KVM switch can handle. Many new KVM switches support the daisy-chaining of similar KVM switches, so admins can control a greater number of servers from a single console.

**Compatibility.** KVMs that work with a mix of platforms, such as PCs and Sun-based servers, offer the freedom to control a group of servers with varying hardware and software. Many KVM switches also feature emulation to give admins the ability to mix legacy PS/2 servers with new USB-based equipment. “Keep in mind that not all KVM solutions support Mac computers,” Trendnet’s spokesperson adds. “If you plan

to connect one or more Mac computers, then remove all KVMs from your KVM short list that are not Mac-compatible.”

**Plan ahead.** Although an admin may need to connect to a given number of servers right now, that number will likely change in the future, so a KVM switch that can handle the extra connectivity is a wise investment. **P**

Key Terms

**Cascading.** Connecting KVM switches together in a chain by attaching one switch to the computer port of another.

**Converter.** An add-on device that converts the KVM signal from one platform, such as Windows, to another, such as Apple.

**Emulation.** A switch’s ability to imitate a signal so that the PC thinks that it’s directly connected to the KVM.

**IP (Internet Protocol).** The protocol that enables admins to route commands across networks in order to work remotely.

**KVM extender.** Converts the KVM signal to travel over a greater distance than it would have previously, eliminating the need to control the servers from the server room.

**KVM sharing.** The ability of a KVM switch to be accessed and controlled by more than one person.

**OSD (on-screen display).** A display that lets admins control the switch and view information about the connected computers without needing to use a PC.

**Resolution.** The maximum pixel height and width the KVM can display.

**Scan rate.** The time it takes for the KVM to switch to a different port.

FEATURED PRODUCT

Try Before You Buy Into The Cloud

Runaware Provides The Tools Needed To Succeed

by Seth Colaner

THE POTENTIAL BENEFITS of cloud computing are well-known, yet there remain several barriers that prevent many companies from adopting the technology. To help break down some of those barriers, Runaware ([www.runaware.com](http://www.runaware.com)) has positioned itself to help other companies safely and efficiently test and release SaaS (software-as-a-service) and PaaS (platform-as-a-service) offerings.

Based in Stockholm, Sweden, and founded in 1999, Runaware is a multinational company with offices in the United States, UK, and India. Runaware’s goal is to become the global leader in online software demo solutions and cloud computing initiatives.

The company partnered with Citrix in 2001, and ever since, its TestDrive hosted environment has been based on the Citrix

Presentation server suite and its related technologies. In 2009, Runaware unveiled Avatar, its new platform that provides the framework for its SaaS and PaaS products.

Cloud Promises & Pitfalls

Runaware views the cloud as the future of computing, from the software level to the infrastructure. The company sees the possibilities of Web-based productivity, virtualized desktops, online platforms for software development, cloud-based storage and servers, and more. Further, it sees how businesses can save money and offer better services by delivering applications faster and with less waste.

However, Runaware also acknowledges the potential pitfalls of cloud computing and the barriers to adoption many companies face. The primary barriers Runaware sees are the need for more education about new technologies, solving problems around disruption when implementing new technologies, estimating initial costs, and extensively testing applications before they can be released or purchased.

A big part of moving into the cloud is migrating existing software, a feat that can be daunting for many companies. In addition to the task of actual migration, many companies fear the loss of certain measures of control, the costs involved, the adjustment its users must make, and backward compatibility with the legacy versions of its product.



Runaware TestDrive uses a three-step approach to minimizing the risk of failure when using the cloud: evaluation, experimentation, and education.

To alleviate these problems, Runaware has developed its “try before you buy” approach to migration, providing tools and a platform with which any company, large or small, can run software demos in the cloud. This feedback enables companies to see how a hosted version of their software would work, troubleshoot, evaluate ROI and ROEI (return on existing investment), and even develop means of educating end users about the new product.

Tools & Services

The “try before you buy” ethos is realized in Runaware’s flagship product, TestDrive. In addition to providing a hosted testing environment, TestDrive offers tools and services that cover online marketing, customer profiling, lead capture, downloads, and more.

TestDrive works within virtually any Web browser and on any operating

system. Users can click a URL to launch a SaaS deployment, which will be active with all its features, just as if it were installed locally. It supports multiple concurrent users and can simultaneously deploy content at multiple locations.

TestDrive can also capture valuable data about user preferences and usage patterns, providing excellent feedback for developers. The tool can even be used for proof of concept and beta testing, and once migration is complete, companies can use the platform to run online demos and tutorials for end users, marketing teams, training staff, and engineers.

Runaware provides the tools necessary for companies of virtually any size to conduct due diligence regarding migrating to the cloud, enabling ISVs to confidently move forward secure in the knowledge that the costs, technical considerations, and user experience will all satisfy their needs and concerns. **P**

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[www.runaware.com](http://www.runaware.com)


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# KVMs

Product

AdderView CATxIP 5000



Description


The AdderView CATxIP 5000 is the culmination of Adder's KVM over IP expertise to date. This new device offers four non-blocking simultaneous IP connections together with a local port (five separate users) and allows the user to control 16 separate devices. The AdderView CATxIP 5000 is small and compact, enabling you to fit two units side by side to support 32 computers and 10 sessions in just 1U of rack space.

- Four simultaneous users connect via IP to any of the 16 connected devices
- Direct connection for one local user to connect straight to the switch
- LDAP integration
- Integrated RS-232 control for managing external devices
- ADDER.net management software automates the task of managing network control hardware

**Best For:** IT administrators who need to control a large group of computers over IP from a single KVM switch.

**Price:** \$1,750

AdderView PRO MultiScreen




The AdderView PRO MultiScreen is a professional-grade KVMA switch that delivers ultimate flexibility for users who want to share high-resolution screens and modern USB peripherals between multiple computers. The AdderView PRO MultiScreen enables up to four multihead computers to be controlled from a single high-resolution KVM console using either dual-link DVI or high-definition analog video links.

- Features Adder's True Emulation technology, which ensures that the full characteristics of the connected USB keyboard and mouse are passed to every system
- Dual-link DVI-I with extended profile DDC EDID
- Includes two independently switchable USB 2.0 channels and an audio channel
- Supports resolution of 2,560 x 1,600
- Broad USB 2.0 Hi Speed device support
- Available in dual-, triple-, and quad-head versions

**Best For:** IT administrators, post production, graphic designers, detailed medical imaging, and broadcast studio professionals.

**Price:** \$1,795

Black Box ServSwitch Agility



The ServSwitch Agility from Black Box can function as a KVM switch, a sharing portal, or a DVI extender, depending on how it's configured. Admins can set it up as a point-to-point KVM extender for KVM switching, single-target sharing, or multicasting. Black Box's iPATH system lets IT administrators configure devices, users, and channels and features an on-screen dashboard that provides an overview of the entire system.

- Flexible topology for KVM extension
- Delivers digital video with no loss, minimizing bandwidth use while maximizing the user experience
- Features keyboard/mouse emulation and emulation for other standard human interface devices, such as touchscreens or flash drives
- Distance is limited only by your network capabilities when you use network switches
- Mounting options include rack mounting, desktop, and wall mounting


**Best For:** Health IT, command and control room setups, media post-production, and digital signage environments.

**Price:** \$2,045.95

**Contact:** (724) 746-5500 | [www.blackbox.com](http://www.blackbox.com)

Product

Minicom Smart 232 IP Switch



Description


The Smart 232 IP Switch from Minicom is a multiuser, remote access IP KVM switch for data center and server room rack environments. The Smart 232 IP allows two remote administrators and one local user to access and control up to 32 servers through a standard Web browser. The Smart 232 IP measures 1U for convenient rack mounting with the included rackmount kit.

- Three simultaneous KVM users (two remote and one local) and two additional serial session users
- Utilizes the highly secure 256-bit AES encryption protocol with multilayer user rights
- Absolute mouse support means no need to change mouse settings in Windows OS
- Innovative Minicom KVM over CAT 5 technology
- Multiplatform support for PS/2 and USB
- Extends distance between servers and switch up to 30 meters/100 feet
- Seamless power control

**Best For:** Companies in need of a versatile, high-performance KVM with central management capabilities.

**Price:** \$3,495

Opengear IP-KVM-1001




Opengear's IP KVM is a one-port KVM over IP switch with both USB and PS/2 connectors for server and client connections. The IP-KVM-1001 is also equipped with dual RJ-45 10/100 Ethernet ports, USB connections, virtual media options, and a local KVM interface for direct access.

- Cost-effective 0U device for KVM control at the rack or remotely over IP
- Access systems during boot up, BIOS, and frozen OS conditions
- No client software
- Secure, encrypted browser sessions with authentication
- Deliver patches/upgrades as if onsite
- Console access to switches, routers, PBXes, or an external modem

**Best For:** IP-enabling analog KVMs and avoiding the single point of failure found in high-density KVM appliances.

**Price:** \$345

Rackmount Solutions  
CyberView Matrix High-Density  
CAT 5 KVM (UIP-3202)



The CyberView UIP-3202 from Rackmount Solutions is a 1U high-density CAT 5 KVM switch with 32 ports. It offers a maximum distance of 40 meters (130 feet) between your server and KVM switch with the rear cable management using CAT 5 cords. With the UIP-3202, you can mix PS/2, USB, and SUN with multiplatform switch capability. A second user can work securely over 128-bit encrypted IP access using the Web interface to control multiple servers down to the BIOS level.

- Use of the RJ-45 CAT 5 interface allows for a higher number of ports in smaller density
- Traditional CAT 5 cords provide simpler cable management compared to coaxial cables
- 128-bit secure browser-based user access from anywhere in the world over IP
- Advanced user profiles and configurable OSD hotkey combinations

**Best For:** Enterprises that need a KVM switch that offers increased density, increased distances, enhanced cable management, and multiplatform capabilities over traditional KVM switch platforms.

**Price:** \$1,543

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Nathan Lake

## Black Box ServSwitch Freedom



The Black Box ServSwitch Freedom is a four-port switch that works as if there is an extended desktop on a single computer, except that the user is accessing the desktops of four different PCs. Once the screen layout is configured, the user moves the mouse cursor over the X and Y borders to switch PC access. The ServSwitch Freedom supports a mix of USB peripherals, and it works on Windows, Linux, Mac, Sun, and NetWare systems.

- Makes for speedy switching between monitors from a tradeshow floor
- A flexible, four-port, professional-grade switch for simplifying USB keyboard/mouse access to multiple computers
- Enables a single user to switch between four monitors and attached CPUs and share USB peripherals between them
- Features two independent USB 2.0 channels
- Supports “quick-fire” switching via hotkeys, a mouse, or front-panel buttons
- Features stereo audio

**Best For:** Command and control centers.

**Price:** \$495

**Contact:** (724) 746-5500 | [www.blackbox.com](http://www.blackbox.com)

## Broadrack Saturn 8D



The Saturn 8D is a modular, eight-port DVI USB KVM switch with an audio switching function for Gemini and Unicorn consoles. It gives admins control over eight USB-enabled multimedia computers with DVI video interfaces, using keyboard hotkeys to select the computers, USB device hub port control, and audio channels. It's TMDS compliant to support DDC2B emulation and HDCP compliant for digital content protection.

- Eight-port DVI USB KVM switch with audio switching
- TMDS signal pass through
- USB keyboard and mouse support
- Support for Windows 98/SE/ME/2000/XP/Vista, Linux, and Mac OS
- Built-in two-port USB 2.0 device hub for sharing high-speed USB devices
- Supports resolutions up to 1,280 x 1,024

**Best For:** Organizations that need a KVM with support for digital video, USB devices, and audio switching.

**Price:** \$499.99

## HP Server Console Switch G2



The Server Console Switch G2 from HP integrates KVM and serial devices into a single management console for all of a data center's servers, network devices, and infrastructure. The G2 requires no software to be installed on the target servers, and it uses CAT 5 UTP cables between switch and server to improve cable routing and allow for field termination of custom cable lengths. The switch integrates with the HP IP Console switch to ensure that local KVMs can be integrated smoothly and easily into a KVM/IP remote management setup.

- Offers local console, USB, keyboard, and mouse support
- Scalable to 256 servers
- Integration with iLO and the HP IP Console Switch ensures that the local KVM user and remote manager work smoothly together
- Serial, PS/2, USB, and BladeSystem interface adapters to integrate all servers and devices into a single KVM infrastructure
- CAT 5 KVM cabling means minimal cabling in the back of the rack to ensure clean airflow and maximum cooling for today's dense data centers

**Best For:** Small and midsized businesses that need expandable support or enterprises that want a cost-effective KVM solution in a managed data center.

**Price:** Starts at \$769 for eight ports

## Trendnet TK-804R



Trendnet's eight-port TK-804R KVM switch features an on-screen display that lets you manage multiple computers with just one keyboard, monitor, and mouse. It supports USB and PS/2 interfaces on the console side and USB interface on the PC side. Users can switch between PCs using hotkey, push button, or on-screen display for flexible management and can hot-plug PCs quickly to avoid downtime.

- High video quality; supports up to 2,048 x 1,536 resolution
- Advanced adjustable auto-scan modes for monitoring multiple computers
- LED display for easy status monitoring
- Password protection with auto timeout logout
- Auto-detect power module bank number when daisy-chaining
- Built-in daisy-chain port for cascading up to 16 levels (128 computers) of up to 30 meters total distance
- Beep alert for port switching confirmation
- Standard 19-inch 1U rackmount design

**Best For:** SMEs that need to monitor multiple PCs quickly and efficiently.

**Price:** \$299.99

## Trendnet TK-IP101



The TK-IP101 from Trendnet is a one-port KVM over IP switch that provides cost-effective remote server management for multiple users, regardless of server status. It eliminates the need to physically be in the server room to troubleshoot, reboot, and edit pre-boot functions. The TK-IP101 gives admins highly secure access to both Windows and Java-based clients. The TK-IP101 supports four concurrent logins with up to 16 active user accounts.

- Save time and resources by managing resources remotely
- Centralize management of multiple servers when connected to a conventional KVM switch
- Multiple user access control
- Crisp 1,600 x 1,200 resolution
- Intuitive Web user interface permits upgrades and backups
- Supports user-friendly Telnet sessions and FTP access
- Use with TRENDnet's TK-RP08 to control on/off power cycling of multiple devices remotely
- Works with LDAP, RADIUS, and Active Directory servers
- Supports Ethernet RJ-45 and PPP connection over serial RS-232 interface with data rates up to 1Mbps

**Best For:** IT staff that want to control BIOS-level functions, Windows-based applications, and other interfaces from a single intuitive Web user interface.

**Price:** \$499.99

## Trendnet TK-RP08



The TK-RP08 from Trendnet is an eight-outlet remote power controller that provides remote on/off power control for devices in the network. With the TK-RP08, admins can service, reboot, and troubleshoot a network from one computer system. It can cascade up to 16 rack-mountable units and manage up to 128 total power outlets.




- Allows remote power control of eight electrical outlets using ASCII commands
- Numerical module display identifies power module bank number for each cascaded unit
- Service, reboot, and troubleshoot the network from any location when used with the Trendnet TK-IP101 KVM over IP switch
- 19-inch metal rackmount case
- Intuitive management interface
- Numerical LED display provides total real-time current loads
- Eight green (on/off) LED indicators monitor AC outlet status and eight red (alarm) LED indicators display power outlet state of failure

**Best For:** Those that want to save resources by performing power management from one computer.

**Price:** \$249.99



# Power Distribution Units

Product	CyberPower PDU15SW8RNET	CyberPower PDU20MV20F	CyberPower PDU30BHVT10R
			
Description	<p>The CyberPower PDU15SW8RNET is an eight-outlet rack-mount networked PDU that is made of rugged, industrial-grade metal and provides 120V 15A output. From a single NEMA 5-15P input, it delivers an unfiltered electrical pass-through current to eight NEMA 5-15R receptacles. The PDU15-SW8RNET provides a network connection through an RJ-45 Ethernet port and offers remote management.</p> <ul style="list-style-type: none"><li>LCD screen provides real-time load monitoring measured in amps</li><li>10-foot AC power cord included</li><li>Can be mounted horizontally or vertically</li></ul> <p><b>Best For:</b> Organizations looking for a rugged, industrial-grade switched PDU.</p> <p><b>Price:</b> \$595.95</p>	<p>The 20-outlet CyberPower PDU20MV20F 0U vertical rack-mounted metered PDU can support 20 NEMA 5-20R receptacles with unfiltered electrical pass-through, and the LCD screen offers real-time load monitoring measured in amps. With an industrial-grade metal exterior, the PDU20MV20F offers a rugged design and can be mounted horizontally, vertically, or on the wall.</p> <ul style="list-style-type: none"><li>20-amp electrical capacity with a circuit breaker</li><li>10-foot AC power cord and cord retention tray included</li><li>ETL/RoHS-certified</li></ul> <p><b>Best For:</b> Data centers in need of a flexible and rugged metered PDU.</p> <p><b>Price:</b> \$198.95</p>	<p>The CyberPower PDU30BHVT10R is a rackmount basic PDU with 10 outlets that offer 200V/230V 30A output and deliver unfiltered electrical pass-through power to 10 IEC-320 (two C19/8-C13) receptacles from a NEMA L6-30P twist-lock plug. The industrial-grade metal housing provides a rugged exterior, and it includes a 10-foot AC power cord. The PDU30BHVT10R can be mounted horizontally and vertically, and it comes with a lifetime warranty for defects in design, assembly, material, and workmanship.</p> <ul style="list-style-type: none"><li>30-amp electrical capacity with a circuit breaker</li><li>Includes a cord retention tray</li><li>ETL/RoHS-certified</li><li>1U rackmount</li></ul> <p><b>Best For:</b> Companies looking for a rugged basic PDU.</p> <p><b>Price:</b> \$209.95</p>

Product	PDU Direct C-16V1-C20MX	PDU Direct CW-8H2-C20M	Rackmount Solutions BED Series
			
Description	<p>The C-16V1-C20MX is a metered 0U vertically-mounted PDU that features 16 NEMA 5-20R outlets, multiple in-feed plug types, and a local amp meter. Engineered to be compact, the C-16V1-C20MX is mounted in the rear dead space, so your rack space is open for equipment and ventilation.</p> <ul style="list-style-type: none"><li>15- or 20-amp steel-cased enclosure</li><li>Includes local LED input current monitoring to accurately measure the amps drawn on the connected power circuit</li><li>Immediately observes new equipment's impact on the collective current draw</li><li>Loads each circuit to its threshold safely, decreasing the risk of overloads</li></ul> <p><b>Best For:</b> Small to midsized organizations looking for a compact PDU.</p> <p><b>Price:</b> \$225</p> <p><b>Contact:</b> (888) 751-7387   <a href="http://www.pdusdirect.com">www.pdusdirect.com</a></p>	<p>With the 208V CW-8H2-C20M, you can control and monitor your outlets remotely through an IP connection or serially for out-of-band access and enjoy the combination of local metering and remote management. This PDU also provides power and environmental monitoring, and when power or environmental conditions surpass the maximum limit, users are alerted through SNMP or email alerts. The industrial-grade outlets provide multiple in-feed plug types and upgradeable firmware for dependable power distribution. Outlet Grouping also lets users reboot both single- and dual-power servers with just one command.</p> <ul style="list-style-type: none"><li>Individual and grouped outlet control</li><li>Environmental monitoring</li><li>Network and serial connections</li><li>Eight NEMA 5-20R outlets or eight IEC C-13 outlets</li></ul> <p><b>Best For:</b> Small to midsized organizations looking for a remotely controlled power unit.</p> <p><b>Price:</b> \$360</p> <p><b>Contact:</b> (888) 751-7387   <a href="http://www.pdusdirect.com">www.pdusdirect.com</a></p>	<p>The Rackmount Solutions BED Series comes in a variety of sizes with heights of 24, 48, and 70/72 inches. All units are 120 volts and come UL- and cUL-listed. The BED Series protects against overloads on each vertical power strip through a resettable circuit breaker, and the rugged, gray aluminum exterior protects against physical damage. The 15-amp vertical power strips feature snap-on/slide-off mounting, while the 20-amp models have spring-clip mounting.</p> <ul style="list-style-type: none"><li>Lighted on/off switch (available without; please ask)</li><li>Two-year product warranty</li><li>15-foot cord included</li></ul> <p><b>Best For:</b> Small to midsized organizations looking for a simple power strip PDU.</p> <p><b>Price:</b> Starts at \$66</p> <p><b>Contact:</b> (866) 207-6631   <a href="http://www.rackmountsolutions.net">www.rackmountsolutions.net</a></p>



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Tessa Warner Breneman

# & Tools

## Cyber Switching Dualcom PLUS



The Cyber Switching Dualcom PLUS is for IT administrators that need to manage equipment around the clock. The Dualcom PLUS includes features not found on other entry-level vertical PDUs. Cyber Breaker, the Virtual Circuit Breaker, isolates overcurrent conditions to one outlet and protects other equipment on the bank, thereby reducing downtime. Individual current monitoring on every outlet lets you monitor the usage on every outlet and make informed decisions on how best to manage your power grid.

- Remotely monitor and manage your equipment through a Web browser, a Telnet session, or with SNMP commands
- Schedule times for outlets to power on and off
- Event logging
- Warnings for over- and under-currents

**Best For:** IT administrators needing an entry-level intelligent PDU with a robust feature set at a great value.

**Price:** Starts at \$599 per unit

**Contact:** (888) 311-6277 | [www.cyberswitching.com](http://www.cyberswitching.com)

## Cyber Switching ePower



Cyber Switching's ePower family is targeted at data center managers searching for greener solutions. These products integrate enhanced features while remaining reliable and affordable. Patented Individual Outlet Power Metering and Control provides billing-grade metering for each individual outlet at an accuracy of 2% or better. Utilizing the unit's full-color LCD touchscreen or a standard Web browser, IT personnel can keep up-to-date on critical information, including real-time power information, load details, input line utilization, and system status. ePower saves your company time and energy while also saving the environment.

- Patented Cyber Breaker® technology protects equipment by limiting overcurrent conditions to a single outlet
- Color LCD touchscreen has an intuitive interface
- Two high-speed USB ports can support up to 127 peripherals, such as environmental sensors
- More than 60 high-density PDU configurations
- Network connection allows for remote monitoring and management of your power usage

**Best For:** Companies looking to implement a comprehensive data center management plan.

**Contact:** (888) 311-6277 | [www.cyberswitching.com](http://www.cyberswitching.com)

## Eaton ePDU Core Power Series



The Eaton ePDU Core Power Series is built to provide reliable power distribution for high and ultra-high power density applications. The 30A three-phase Core Power Series units are optimal for 208V three-phase solutions and up to 50A of power. They are available in both basic and monitored network technologies. In addition to being able to remotely monitor the current draw of individual sections, the monitored versions also have the capability to monitor for hot spots or cooling loss within the enclosure.

- Deliver adequate, but not excessive power, targeting 8.7kW per enclosure
- Minimize wasted poles to fully utilize available power on panel boards
- Prevent temperatures from reaching levels that demand costly cooling solutions

**Best For:** Mid- to enterprise-level data centers with high power requirements.

**Price:** Starts at \$499

## Rackmount Solutions SPDU20-0U Power Commander IQ



The SPDU20-0U Power Commander IQ is a network-controlled PDU from Wiremold/Legrand that delivers secure remote access to all power outlets through an HTTP Web browser, Telnet, SNMP, external modem, or email. Additionally, users can send control commands through email, and the AutoPing feature reboots the system if it ever goes down. Through the embedded Web server, you can modify settings or the system status and view the current or temperature through the TCP/IP network or a local direct connection. The SPDU20-0U Power Commander IQ offers three hardware options for mounting in racks and cabinets.

- 64-bit network security with username and password protection and IP screening per outlet
- Alarms for predetermined settings, including audio buzzer, email, TRAP or data log, and alarm message time interval
- Convenient Access Control List for assigning access rights

**Best For:** Small to midsized businesses looking for flexible mounting options for racks and cabinets.

**Price:** Starts at \$430

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Server Technology Smart Power Monitor



The rack-based Smart Power Monitor from Server Technology lets you add current load or power monitoring to your cabinet via Web GUI using either a serial connection or a Web-based interface. Additionally, you can be sure your CDU's power in-feed is correctly loaded. The Smart Power Monitor can support two external 10-foot probes, which measure the temperature and humidity levels. You can view the conditions through a Web interface and receive alerts when environmental levels surpass thresholds you've set.

- Input current monitor measures the aggregate current draw on each power circuit
- Remote management via Web-based interface or serial connection
- Supports two external 10-foot probes that measure temperature and humidity
- True RMS current monitoring

**Best For:** Organizations that need to remotely monitor and aggregate information for data centers and other facilities and already have Basic or Metered PDUs deployed.

**Contact:** (800) 835-1515 | [www.servertech.com](http://www.servertech.com)

## Server Technology Sentry Power Manager



The Sentry Power Manager from Server Technology is engineered to let users access and manage multiple Sentry devices in an IP-based enterprise network. Not only do you get a global view of all Sentry CDUs, but you can view devices based on their temperature, humidity, current, and device status.

- Access through any standard network browser
- Group and cluster outlets for remote reboot and power data on one CDU, across linked CDUs, or across an IP address
- Logs by start and end date include information such as discovery and user login
- Trending capabilities include the ability to graph using start- and end-date temperature, humidity, infeed load, infeed power, system watts/unit area, and system total power
- Real-time alarm notification

**Best For:** IT managers needing to remotely manage power consumption and maximize energy efficiency.

**Contact:** (800) 835-1515 | [www.servertech.com](http://www.servertech.com)

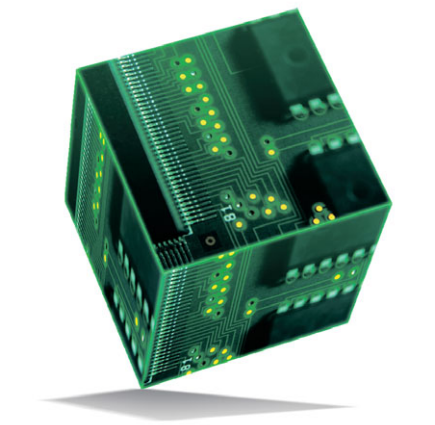


FEATURED PRODUCT

Poor VM Densities Could Be Costing You

Average virtual machine densities are just two virtual machines per core, but allocated/actual memory is 70% of a server's RAM—leaving 30% in reserve, according to a recent report from VKernel.

Bryan Semple, chief marketing officer at VKernel, says that “Concerns over memory utilization cause organizations to overallocate CPU, but underallocate memory. There is some validity to the concern that memory issues cause a majority of performance problems in virtualized environments, but not enough to justify the level of underallocation the study reported. This is more a psychological ceiling vs. one based on actual memory usage.”



The end result of the memory underallocation is that no additional VMs can be installed on a server, no matter how much CPU or storage capacity remains. VKernel's Virtualization Management Index report found that the majority of hardware environments feature dual-socket, quad-core processors with 50GB of memory and 2TB of storage. Cost is the primary problem with installing more memory because of the limited number of memory slots. To increase memory capacity, enterprises will need to invest in expensive, higher-density modules that are often in the double-digit gigabyte range.

Back To The Mainframe

“Organizations need to wind the clock back and look at how capacity management was done in the mainframe days. You had a shared memory, CPU, [and a] storage pool of resources that multiple applications shared. With proper capacity management, you maximized the number of applications you could run and you had plenty of lead time to order new hardware,” Semple says.

VKernel recommends capacity management for any large enterprise with more than 100 virtual machines. The reclamation of the overallocated CPU and underallocated memory can be applied to other virtual machines to increase the VM density per host and lower cost.

“Advanced virtualization projects won't get off the ground if resource uncertainty is not eliminated. This will lead to VM stall and a slowdown of virtualized applications in the data center,” Semple says. Overallocation costs you money, and the uncertainty about resource requirements causes enterprises more concerns when deploying mission-critical applications. “Lost host/VM densities cost nearly 50% more per VM than higher-density environments. This will become an issue as organizations look for more cost savings from virtualized environments,” Semple says. A better utilized infrastructure will deliver improved results and more cost savings.

by Nathan Lake

Watch Your Web Traffic

Apparent Networks' AppView Web Shows Whether Your Network Performance Is Up To Snuff

by Holly Dolezalek

PERFORMANCE PROBLEMS ARE hard enough to detect and troubleshoot when they're on your own network. But what if your company's network problems are coming from the cloud, not you? As you experiment with having business-critical functions in the cloud, monitoring the provider's performance can be just as critical as monitoring that of your own network.

That's Apparent Networks' business model. Founded in 2000, the company's mission, in part, is to help companies that are using the cloud to get the performance they need from their providers.

“Companies in the SMB market are rapidly embracing the cloud,” says Jim Melvin, CEO of Apparent Networks (www.apparentnetworks.com). “They're somewhat resource-thin and don't have a lot of

pay for from the cloud, Melvin explains. “For example, am I getting what I'm paying for from my carrier? The carrier charges me \$3,000 a month for 10 megs of bandwidth, but am I really only getting 3?,” he says. “That kind of thing happens all the time, and end users have no way to monitor that. Our technology allows continual monitoring of what the carrier is really providing.”

PathView Cloud does this same analysis for third-party networks, such as the sort used by cloud providers. PathView Cloud is subscription-based, like PathView, and is also installed via the Apparent Networks microclient. It monitors network paths to and from remote sites and keeps an eye on such performance-killing phenomena as jitter, loss, and latency.

AppView Web

The same logic behind PathView Cloud motivated the creation of the software's newest module, AppView Web. AppView Web is one of several available add-on modules that can accompany the basic PathView installation. The mod-

ule monitors the performance and uptime of any Web site, so any company that has one of its Web sites in the cloud can keep an eye on how that site is running while it's in the cloud.

“Maybe you're using Salesforce.com, a backup service, hosted email, or some other Web service,” Melvin says. “AppView Web allows you to monitor the actual HTTP throughput and make sure it's working appropriately.”

AppView Web came out in December, and Melvin says it's already a big hit with the company's customer base. “We've got about 1,000 customers online right now, and we've got 20% of that base installing it,” he says.



infrastructure, and rather than focus on IT, they're focused on making their business run. So there's significant interest there in hosted messaging, Exchange, voice services, or other services through the cloud instead of providing them on-premises.”

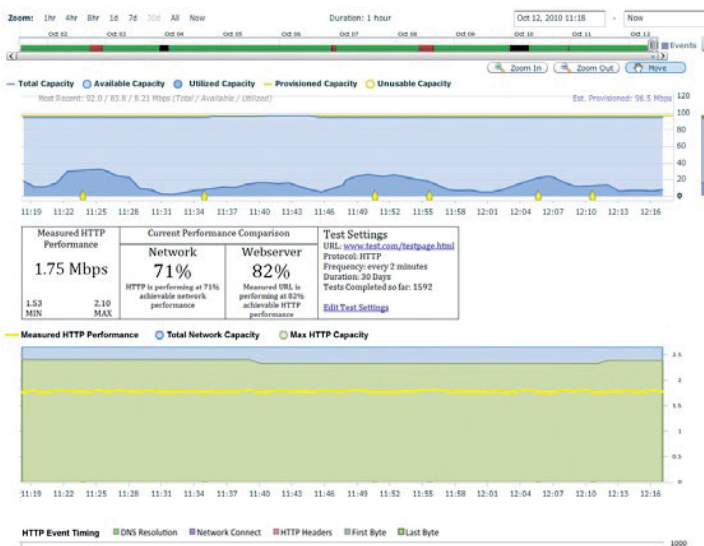
However, Melvin points out, where they once only did one or two functions in the cloud, companies are now turning to the cloud for all kinds of services, such as VoIP, storage, backup, or desktop virtualization. And especially when those services include business-critical applications or customer-facing Web sites, many companies can't afford to simply head to the cloud and hope for the best. “Networks, when left alone or unmanaged, will have performance issues,” he says. “If you don't measure what's happening, you can't count on their performance.”

PathView

Apparent Networks' flagship product is PathView, a remote performance management system. PathView is installed on a microclient, about the size of a smartphone, that plugs into any port on the network. The microclient enables a hosted service that allows users to identify network faults, configuration problems, and other performance issues for any IP address. They can also do remote packet capture and perform application performance analysis.

“There are a lot of traditional network management tools out there that are device-based and capture information, but very few that can give end-to-end performance and manage a remote site through complete performance management,” Melvin says.

The software helps companies keep an eye on whether they're getting what they



AppView Web continuously monitors the performance and uptime of any Web site to help identify performance issues.

Some business for the module is coming from customers who want to keep an eye on their own Web sites. But Melvin says that many of Apparent Networks' customers are managed service providers, and they, too, are interested in the module because it helps them make sure they're delivering the service levels they've promised.

APPARENT NETWORKS APPVIEW WEB

(800) 508-5233  
www.apparentnetworks.com

**Description:** AppView Web is an add-on module for Apparent Networks' PathView remote performance management system that allows PathView users to track and monitor the performance of any Web site.

**Interesting Fact:** AppView Web compares the speed at which a network is able to deliver traffic to the actual live Web traffic to determine whether the site is performing to its capacity.

Other customers come from health care, where the change to electronic medical records means doctors are updating those records in real time and occasionally moving large files, such as CAT scans or X-rays. Melvin says that Apparent Networks also gets business from higher education institutions, from financial companies such as regional banks or credit unions, and from energy companies.

Responding To Network Complexity

Melvin says the module's popularity is a sign that customers are getting smarter about how critical network performance is to the success or failure of key applications. And network performance problems get more subtle all the time. For example, he says, QoS tags are intended to get the right treatment for the right kind of traffic in networks. “If it's voice traffic, you want a high-quality service tag attached to that traffic so that it takes priority over, say, Web surfing traffic, where the performance isn't as critical,” he says. Originating devices put these tags on traffic, which should guarantee their proper handling, but routers on the Internet or carrier backbone have to preserve those tags. Routinely, they don't, and

if the tag gets stripped out, suddenly that voice traffic looks like ordinary Web traffic.

Another example he gives is that of a cable that is starting to go bad—not so bad that the problem is obvious, but to a point that maybe it's losing 5% of the packets. “Now that traffic has to get retransmitted from somewhere else, and that's going to lead to performance impairment,” he says. “It's not the difference between performance or no performance, it's the difference between full productivity and less productivity.”

Melvin says that AppView Web and PathView can take the guesswork out of whether third parties are really delivering the service

levels they've promised in environments that have traditionally had low visibility for customers. “Networks are dynamic and will reconfigure themselves in the event of a problem, but when they do, their performance characteristics will change,” he says. “And while they might get better, they mostly get worse.”



TECH IN-DEPTH

- Key Points
- Fibre Channel over Ethernet encapsulates Fibre Channel frames into Ethernet frames, allowing them to run alongside traditional IP traffic.
  - Converged networking enables network consolidation and network bandwidth provisioning for applications on demand, increasing business agility.
  - Moving to a unified, converged infrastructure can be done gradually. FCoE does not require a disruptive deployment and can be implemented in phases on installed storage networks.

# Fibre Channel Over Ethernet

## Reducing Network Complexity

BY CHRIS A. MACKINNON

*There has to be a logical evolutionary step for converging Ethernet networks and Fibre Channel for storage-area networks, without a downside. FCoE (Fibre Channel over Ethernet) answers this need by reducing network complexity in the data center. FCoE, a storage networking protocol that supports Fibre Channel natively over Ethernet, encapsulates Fibre Channel frames into Ethernet frames, allowing them to run alongside traditional IP traffic.*

### GAINING GROUND

According to Saqib Jang, with the data center products group at Brocade ([www.brocade.com](http://www.brocade.com)), the interest in FCoE is tied to the overall trend toward data center I/O consolidation. “Simply put, I/O consolidation is the ability of a host bus adapter, switch, or storage system to use the same 10GbE physical infrastructure to carry data, storage, and cluster networking traffic having typically very different characteristics and handling requirements,” Jang explains. On the network infrastructure side, he says, this equates to installing and operating a

single network capable of handling the throughput, latency, and reliability requirements of different types of traffic.

Deirdre Wassell, director of solutions marketing at EMC ([www.emc.com](http://www.emc.com)), says that with FCoE, servers can deploy CNAs (converged network adapters) and utilize an Ethernet cable. “Costs savings, therefore, come in the form of server adapters, cables, and power and cooling,” Wassell says. “FCoE is also gaining attention because storage vendors now have native support for FCoE. Also, virtualized server environments can take advantage of the increased bandwidth FCoE provides.”

### DATA CENTER IMPACT

According to Henry Baltazar, senior storage analyst with The 451 Group, the transition to FCoE will not be an easy one. “SANs are deployed and managed by storage administrators, while IP networks are run by separate networking teams,” he says. “The largest obstacle to FCoE adoption will be driven by various political questions such as ‘Who is responsible for (or funding) the deployment?,’ ‘How do we deal with patch management?,’ ‘How do we get storage and networking teams to collaborate?,’ and ‘How do we secure the unified network?’”

FCoE’s impact on business agility will be huge because deploying a converged network enables network consolidation and facilitates network bandwidth provisioning for applications on demand, says Shaun Walsh, vice president of marketing at Emulex ([www.emulex.com](http://www.emulex.com)). “It also complements server virtualization deployments

## Interest in FCoE is tied to the overall trend toward I/O consolidation.

(which enables higher efficiencies and agility inherently) and enables IT organizations to dynamically respond to changing business demands through rapid provisioning of application and infrastructure services from shared pools of consolidated compute, storage, and network resources,” Walsh explains.

Looking to the future, Jang says enterprises with existing Fibre Channel SANs are likely to continue adding to their Fibre Channel environments, taking advantage of newer, higher-speed Fibre Channel SAN technologies in a nondisruptive fashion. **■**


## Gradual Deployment

The idea of switching to a new network infrastructure can seem daunting, but one of the biggest benefits of Fibre Channel over Ethernet is that it does not require the SME to gut its existing infrastructure and start from scratch.

According to Kash Shaikh, senior manager of data center switching at Cisco ([www.cisco.com](http://www.cisco.com)), FCoE deployment can be broken down with a phased approach and multistep journey. Shaikh explains, “Moving to a unified and simplified converged infrastructure can be done gradually—FCoE does not require a ‘rip and replace’ or disruptive deployment; it can be implemented in phases nondisruptively on installed storage networks.”

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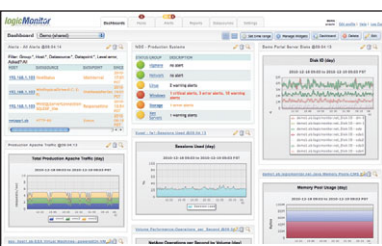
IMPLEMENTING EFFECTIVE monitoring is one of the biggest things a data center professional can do to increase uptime and end user satisfaction while reducing troubleshooting time. Unfortunately, that's not so easy.

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## Networking Equipment Sales Experiencing Boom

The word from Infonetics’ third-quarter 2010 Data Center Network Equipment report is that sales of networking technology is on the rise as many data centers undergo a round of upgrades. The report looked at data center network equipment that includes data center Ethernet switches, application delivery controllers, and WAN optimization appliances.

As new technologies enjoy wider adoption and other technologies see improvements, data centers must upgrade to keep pace with the rest of the industry. According to the report, advancements in virtualization technology are a factor in the sales increase. Part of the demand also stems from the fast-growing amounts of data that require storage, especially as cloud computing continues to increase in popularity. Further, many companies played it safe during 2009’s economic downturn, by being fiscally conservative and putting off investments, and are now ready to spend the money to catch up.

Infonetics believes that these factors will drive the networking equipment market totals for 2010 up 67% over 2009 and reach a high of \$7.6 billion worldwide. Global revenue for data center networking equipment was up 2% sequentially in the third quarter to \$1.9 billion and was led largely by growth in North America, Europe, the Middle East, and Africa.



It appears as though 10 Gigabit Ethernet technology, which is gradually coming down in price, has a hand in the growth. Although the percentage is lower in the general Ethernet switch market, 10GbE accounted for 14% of all data center switch ports in Q3 2010, and Infonetics predicts that it will reach 50% penetration by 2014.

### Manufacturers Bouncing Back

Although the general upward trend of data center networking equipment sales due to upgrades helps, application delivery controllers get an additional boost from the recovering financial sector and from telecom carriers.

A few companies in particular have been benefitting from the upsurge in the data center networking equipment market. F5 and Cisco still maintain a strong presence in the application delivery controller market, but Citrix edged past the latter by boasting a revenue increase of 25% in the third quarter. In the WAN optimization appliance sector, Riverbed stands alone as the dominant player. In the third quarter, the company’s revenue in that market leapt 22%.

In addition to F5, Cisco, Citrix, and Riverbed, Infonetics tracks players such as ADTRAN, Alcatel-Lucent, Avaya, Brocade, Enterasys, Force10, HP, Juniper, NETGEAR, Radware, and Silver Peak.

by Seth Colaner

# Networking Options For Virtual Servers

## Address The Challenges Of Larger Virtualization Farms & Scaling Networks Accordingly

by Elizabeth Millard

VIRTUALIZATION IS AN ESTABLISHED IT trend, but as people get comfortable with the technology and as the number of CPU cores per server keeps increasing, enterprises are looking to boost consolidation ratios from today’s modest five to 10 per server to 20 or more. An exploding number of VMs per server farm, likely to be in the hundreds, creates new challenges in integrating all of these VMs into data (LAN) and storage (SAN) networks. But there are ways to address the larger issues and scale enterprise networks accordingly.

### Challenge Round

Current virtualization technologies enable consolidation of increasing densities that challenge the underlying infrastructure, notes Sunil Bhatt, CTO of Allied Digital Services ([www.allieddigital.in](http://www.allieddigital.in)), an IT services provider. He says, “Increasing computing densities and redundancy options create hot spots that call for adaptability within our data center infrastructure from nearly every aspect, including LAN/WAN/SAN connectivity, power, cooling, and management.”

Large virtual server farms usually experience challenges in capacity management and overall environment-wide health monitoring more intensely than other environments, believes Kris Domich, principal consultant at Dimension Data ([www.dimensiondata.com](http://www.dimensiondata.com)). In large farms, tight control over who can create a VM, and on what physical server they may create it, is critical. “While the behavior of a plain-vanilla VM is reasonably predictable, software that may be developed or otherwise installed on the server can introduce variables that can cripple a physical server or network segment, potentially affecting multiple VMs,” he says.

Because of that, comprehensive management can be a challenge, adds Matt Theurer, senior vice president of solutions architecture at Virtustream ([www.virtustream.com](http://www.virtustream.com)). Management tools that provide a larger view can assist the IT manager in making the decision of where to spend additional monies in the most effective manner, he says: “For example, it may be more effective to add an additional compute host to service load, rather than upgrade an existing host with more capacity, if by upgrading the host capacity, that host will overrun its storage or network interfaces.”

### Steps Toward Scaling

The very first step in scaling networks is to validate the organization’s needs and mission statement, to ensure that the direction of the business services are in line with that goal, advises Paresh Shah, director of technology solutions at Allied Digital Services. He says, “A chargeback mechanism, preferably one that can finely monitor data center usage and integrates

### Key Points

- Large virtual server farms tend to experience more challenges in capacity management than other environments.
- It may be more effective to add an additional compute host rather than upgrade an existing host with more capacity.
- When doing network scaling, IT needs a thorough understanding of traffic patterns.

with the organization’s ERP system, is key to ensuring that IT can accurately quantify the real costs of the investments made in virtualization among the departments that most utilize it.”

Once that piece is in place, IT should gain a thorough understanding of what types of protocols, volumes, and patterns of traffic are going to be present, Domich states. The demands of these requirements will often look different than the traditional nonvirtualized networks commonly served by the physically separated core distribution access models.

He notes that in the virtualization-optimized network, the traditional tiers are preserved functionally by logically representing them using fewer physical components. He says, “The scalable virtualization-optimized network can combine application and storage traffic in large quantities leveraging a common Layer 1 with fewer physical connections—and often using less space, power, and cooling than a legacy network design.”

Enterprises that take the time to understand traffic flows and size will find it easier to design and implement a scalable solution from the beginning than to retrofit an existing architecture, notes Sean Jennings, vice president of solutions architecture at Virtustream. Bringing in tools and technologies for traffic flow management can be useful for achieving this goal.

Populating templates with utilization peaks and troughs and enacting detailed mapping of data and utilization levels can be helpful, as well, according to Aninda Bose, head of strategic sales and marketing

at NIIT Technologies ([www.niit-tech.com](http://www.niit-tech.com)). He adds, “With the advent of the cloud, virtualization, and compression technologies, an existing network can almost scale 20 to 30% higher than if these technologies are not explored.”

### Avoiding Missteps

The most common mistake that IT managers make in trying to scale networks in virtualization farms is to treat a virtualized infrastructure like a traditional physical infrastructure in terms of management, notes Bhatt. Some areas that tend to be overlooked are virtualization-layer security and integrated monitoring of applications, networks, and servers, he adds.

Another common misstep is implementing aggregation protocols without understanding how they function or how to properly implement them, adds Jennings. Implementing these protocols between a host and a network can be complex, and even the smallest mismatch between the host and switch can result in degraded performance or loss of functionality. “In addition, link aggregation protocols don’t guarantee an even distribution of network traffic amongst all the bonded interfaces,” Jennings says. “Thus, a single network link can still be overloaded while its companion link in the aggregate may be underutilized.”

He adds that a stumbling block can also occur when a “top of rack” network design is utilized. It’s not uncommon, Jennings notes, for the link between the top of rack switch and the core switch to be undersized, resulting in traffic congestion on that link or for this to represent a single point of failure.

In general, understanding the challenges of larger virtualization farms and avoiding common missteps can go a long way toward increasing consolidation ratios and scaling networks accordingly.

“Keep in mind that the implementation of VM farms is intended to enhance performance, availability, and efficiency,” says Domich. “This notion should be preserved throughout all architectures in the data center, from application design to networks and even facilities.” ■

## Network Scaling Shortcuts

Although network scaling is a complex process, here are a few top-level shortcuts to keep in mind, from Kevin Vuong, lead network engineer at Venyu ([www.venyu.com](http://www.venyu.com)):

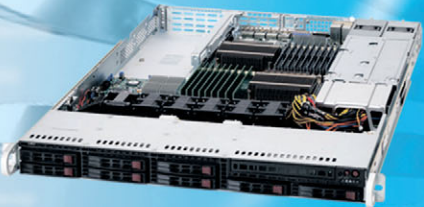
- **Look into virtual chassis-type technology.** It’s easier to manage fewer virtual chassis than multiple individual switches and can assist in minimizing any configuration errors that may occur.
- **Use configuration groups that can be applied to switch ports when possible.** ESX physical NICs belonging to the same vSwitch are typically trunks with multiple VLANs associated with them. By keeping that same mentality on the switch side, an IT manager minimizes any VLAN pruning that can cause downtime if a VM ends up on a switch port that’s missing the correct VLAN.
- **Make sure the network is thoroughly monitored.** The more VMs per physical host, the more chance of traffic spikes that could affect a greater number of servers and applications.



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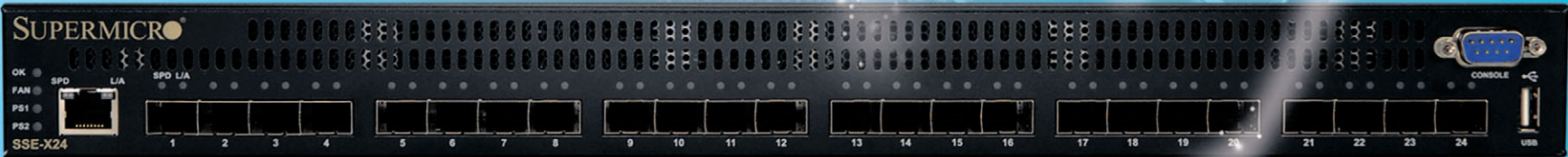
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**Keeping Up With Mobile Employees**

Mobile employees present a number of challenges. We talked with experts to come up with helpful tips and advice in several key areas.

**Can Security & Mobility Co-Exist? | 26**

■ Data center leaders are learning to deploy mobile technology without security gotchas. Consider the following tips before sending mobile users and their technology into the field.

**Have Device, Will Connect | 27**

■ Although mobile devices have the ability to increase productivity and improve communications across the organization, they also carry the potential to trigger a host of security, compliance, and support concerns.

**Supporting Mobile Users | 28**

■ IT and data center managers know the productivity gains that mobile devices offer a company's employees and bottom line. But they also know that supporting those mobile users can put demands on the network.

**Trimming The Costs Of A Mobile Workforce | 28**

■ As the number of employees who use smartphones and other devices for work continues to grow, so do the costs associated with that mobility. As a result, an increasing number of IT managers are looking for ways to trim mobility costs.

# Can Security & Mobility Co-Exist?

## The Two Are Not Mutually Exclusive, Provided You Plan Ahead

by Carmi Levy  
• • •

NOT SO LONG AGO, mobile technology was the security equivalent of a black hole. Protocols, processes, and tools that had been refined for generations on conventional, wired infrastructure within the firewall were rendered virtually useless once laptop- and smartphone-toting end users left the building.

Those days are rapidly drawing to a close as data center leaders learn to deploy mobile technology without security gotchas. Consider the following tips before sending mobile users and their technology into the field.

### Create A Mobile Security Framework

Mobile security has often been something of an afterthought in most organizations. It's an attitude that needs to change, quickly, as new forms of devices, such as tablets, invade the office.

"In the past, mobility has been kind of the Wild West," says Tim Weingarten, CEO of Visage Mobile ([www.visagemobile.com](http://www.visagemobile.com)). "There were multiple devices, and IT managers often didn't know what was connecting to ActiveSync or to the Exchange Server. No one really knew, and it was complete chaos."

Weingarten says the first thing IT must do is document the devices and operating systems that employees at specific levels in certain roles or business units can choose from.

"They need to put a framework in place that allows IT and the business to follow a controlled, procedural approach," he adds. "The most important thing is to draft a policy, document it all, and put it out there for everybody to see across your company."

### Top Tip: Expand The Definition Of Mobility

Mobility is no longer limited to laptops, cell phones, and smartphones. Darryl Cox, manager of audit and control for QTS ([www.qualitytech.com](http://www.qualitytech.com)), says growing tablet use—especially by executives—is forcing IT to redefine what a mobile device is. It doesn't stop there.

"It's hard to say for sure what your employees may be doing with their portable gaming units on their break time," Cox says, "but as vendors bring wireless-capable devices to market, it's clear that those will be capable, if not today, then in the near future, of accessing things that could be considered corporate resources."

### Avoid Older Mobile Operating Systems

Outside of BlackBerry devices, which have always been based on highly secure architecture, only more recent mobile environments such as Apple's iOS 4 and Google's Android 2.2 can be truly considered secure enough for corporate deployment.

"By far the most important thing is picking the operating system," says Weingarten, who adds that organizations

their own devices to corporate infrastructures. Although there is no one best model for everybody, Paul DePond, CEO of Notify Technology ([www.notifycorp.com](http://www.notifycorp.com)), says IT still needs to manage the process.

"Once you allow people to bring in their personal devices, there probably needs to be some sort of company policy over how those will be treated since they're not corporate-owned," says DePond, who describes the employee-purchased trend as something of a mixed bag for IT.

"One of the



running ActiveSync on the server side often found themselves exposed by end users running devices with older, less secure operating systems. "Before Android 2.2 and iOS 4, you could have all those security policies built into ActiveSync but they weren't being enforced on the end user's device. These new operating systems incorporate strong encryption, remote wipe and kill, and all the basic functionality to manage any device just like you would a BlackBerry."

### Adopt A Device Ownership Policy

When mobile devices such as laptops and cell phones were first adopted by enterprises, most organizations bought all the hardware, deployed it to end users, and managed these devices throughout their life cycles. Organizations seeking to cut costs now increasingly allow employees to connect

good things about it is your employee is paying, in some cases unreimbursed, for the device and air time. It also gets the company out of the business of having to deal with purchase, management, [and] billing [of] these devices."

### Segment End Users & Groups Into Different Classes

Not all forms of data, applications, and devices are equally crucial to the organization. In some cases, lower-level employees who may be using mobile devices to access less critical information can get away with a somewhat less stringent security regime than a VP who routinely works with sensitive, strategic resources.

"Not everybody may need the same level of security," DePond says. "This may not be true for every organization, but in every organization, you can have some folks that

### Key Points

- Create a framework to provide foundation and context for more secure mobile infrastructure planning, deployment, and operational management.
- Stick to newer mobile operating systems to take advantage of the latest enterprise-class security features.
- Move beyond passwords to biometrics and certificate-based solutions. Increasingly affordable multifactor authentication solutions can also cut down device-level vulnerability.

are dealing with more sensitive information than other folks. So you may want to have a different course of action based on the level or sensitivity of information that different groups of users may have."

### Implement Biometrics

Passwords can only take you so far. Increasingly sophisticated and determined hackers now have the tools to break through this often-solitary line of defense. Biometric validation adds another layer of protection.

"Enterprise security is rooted in ensuring that data, systems, and applications can only be accessed by the appropriate individuals," says Jim Fulton, vice president of marketing at DigitalPersona ([www.digitalpersona.com](http://www.digitalpersona.com)). "With fingerprint biometrics on corporate laptops, you can know for sure who is logging in and seeking access to sensitive information. This also removes the threat that lost, stolen, or shared passwords and tokens pose to the organization."

The only caveat is cost, as it requires third-party devices or the purchase of new devices that incorporate biometric readers.

### Move To Cheaper Multifactor Implementations

Although hardware such as biometrics and secure USB key fobs may provide a smooth path to multifactor authentication, their cost often limits their appeal. A phone-based factor, in which a secure login attempt can only be completed after the end user responds to a call to his cell phone, can deliver similar security for less.

"It's a much more cost-effective means to achieve the same results in an out-of-band manner than having to buy expensive key fobs," says Darryl Cox, manager of audit and control for QTS ([www.qualitytech.com](http://www.qualitytech.com)). "We're also beginning to see SSL certificates bound to specific laptops. I would expect there to be more creative approaches in two-factor authentication." ■



# Have Device, Will Connect

## The Right Management & Support Tools Can Take The Angst Out Of Deploying Mobile Devices

by Julie Knudson  
• • •

THERE’S NO DENYING that mobile devices have moved out of the shadows and onto center stage. In a 2010 study conducted by Forrester Consulting, more than 95% of enterprises reported that they had deployed mobile devices to at least a portion of their staff, and 75% of respondents were supporting more than one mobile OS. The question today isn’t if you’ll need to ramp up your mobile device efforts, it’s when.

But while mobile devices have the ability to increase productivity and improve communications, they also carry the potential to trigger a host of security, compliance, and support concerns. Choosing the right devices, carefully managing access,

address your organization’s specific needs. Most offerings provide management of multiple device platforms, the ability to automatically implement policies and block access, and varying degrees of self-service functionality. Says Dieckman, “I think over time . . . as the tools get better, it should become easier.” Although he doesn’t suggest that managing a multiplatform environment will be as easy as managing a single-OS system, he does feel that MDM advancements will bring significant benefits. “There are tools out there now that are helping network administrators solve some of these challenges,” he says.

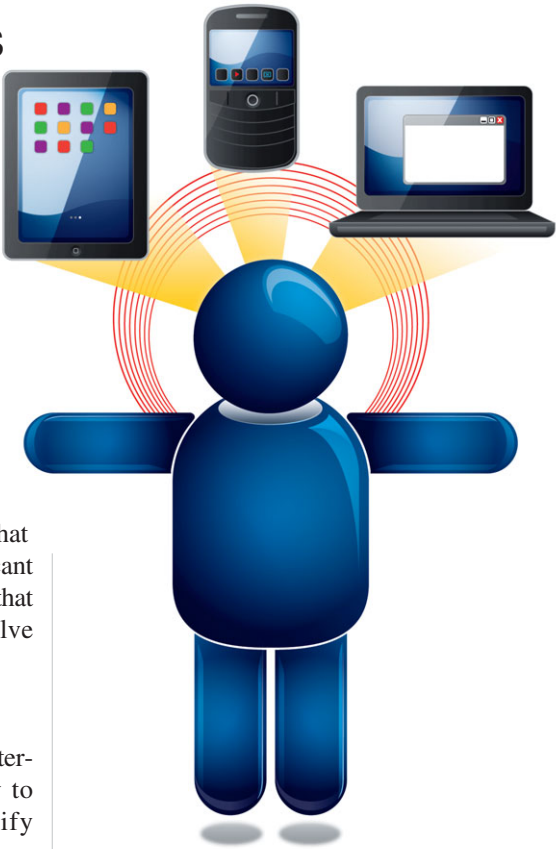
### Leverage Automation

As the number of devices in your enterprise grows, you’ll want a quick way to automatically update policies, modify access, and remove or block devices from the network. Custie Crampton, vice president of MDM technology at Tangoe (www.tangoe.com), stresses the importance of automation when it comes to security concerns such as removing a terminated employee’s access. “You need to make sure those things are happening automatically. You can’t be waiting for someone who’s on vacation to go in to the system and manually do that,” he says.

The automation of common functions not only makes normal management tasks more efficient, it also facilitates the use of more sophisticated IT policies. Implementing highly precise and targeted policies based on job function, reporting level, and other organization-specific factors results in better controlled access and increased security across the enterprise.

### Offer Self-Service

Most enterprises experience an ongoing dull roar of low-level support requests—those types of tasks that could easily be handled by the users themselves, if only they had the right tools available to them. Paul DePond, CEO at Notify Technology (www.notifycorp.com), says, “In organizations with a lot of users, administrators need to empower those users to do some of this



stuff for themselves. They should create mechanisms such as portals so users can do things like block lost devices and change passwords.” By using an MDM system with end-user capabilities, your support team will spend less time fielding garden variety phone calls and can instead focus on more complex support issues.

### Move Beyond Device Ownership

If the idea of connecting employee-owned devices to your enterprise gives you hives, you’re not alone—one of the most controversial elements of the mobile device discussion centers on personally owned devices that access corporate data. Controlling a device that your organization doesn’t own, wondering what sort of sensitive information might be walking offsite each evening, and the prospect of remote wiping a non-corporate device—and potentially erasing personal data in the process—are among the primary concerns.

According to the 2010 midyear numbers published by the CTIA, wireless penetration has reached a whopping 93% of the total U.S. population. As mobile devices become ubiquitous in the consumer arena, data center managers are guaranteed to receive more requests to incorporate the same technologies and allow increased access within the enterprise. Because the majority of today’s popular mobile devices support the synchronization of corporate data, consumers now have ready access to business-capable devices. “I go out and buy a device, and I probably know that I can connect to my corporate email,” DePond says. Tangoe’s Crampton agrees that enterprise connectivity is no longer a hurdle for the majority of consumer-level devices. “What we’re seeing is that a lot of the platforms are starting to come up to speed on what enterprises need,” he says.

Managing employee-owned devices is finally becoming less problematic, thanks in large part to solutions that allow IT administrators to define unique parameters based on who owns each device. It’s no longer necessary to apply the same IT policies across the board, unnecessarily restricting access for some and allowing too much access for others. “Administrators can set different policies for personally-owned devices vs. corporate-owned devices,” DePond says.

### Key Points

- Comprehensive device management software is critical to a healthy and secure network.
- Acknowledge personally owned devices and create specific IT policies to accommodate them.
- Empowering users to self-manage common tasks saves time and money.

and providing good tech support will help you launch a healthy mobile device program and keep it running smoothly.

### Select The Device(s)

Many data center managers don’t have much say in the selection of approved devices. As Matthew Dieckman, product manager for secure remote access at SonicWALL (www.sonicwall.com), explains, “What we’ve seen is that a lot of this is dictated by high-level executives. They go out and purchase their own devices, and then it’s mandated that the IT administrators provide support for these devices.” If you’re in the fortunate position of making a yes/no decision, Dieckman advises keeping compliance issues front and center. “Ask yourself, ‘What are our compliance requirements, and does this platform fit within our compliance framework?’” he says. Issues such as PCI requirements and other considerations should be factored into your final decision.

Remember, too, that different operating systems use different mechanisms for storing and protecting data on the device (and some offer no onboard storage at all). Your organization’s security requirements should guide you toward the best solutions, or at least steer you away from those that don’t offer the specific security tools you need.

### Manage The Environment

Now that the device selection step is out of the way, it’s time to implement some system management tools that will help you securely and efficiently support the connected devices. Enterprise managers will want to address several fundamental issues: How many devices are connected? What kind of devices are they? Who do they belong to? What policies do they have? How do I know if a blocked device is trying to connect?

Mobile device management, or MDM, software is available in a range of flavors to

### Intel, Nvidia Reach Patent Deal

Intel agreed to pay Nvidia \$1.5 billion in a six-year cross-licensing agreement that will allow the companies to use each other’s technologies. The deal ends a legal battle that started in 2009, when Intel sued Nvidia claiming that Nvidia was not licensed to produce chipsets for future Intel processors. Nvidia countersued, arguing that the chips were covered under a licensing agreement the two companies signed in 2004. The agreement will allow Intel to keep developing chips with integrated graphics based on Nvidia technology, and Nvidia will retain the right to use Intel patents.

### IT Still Confused About Clouds

Almost half of the IT personnel in midmarket organizations admit that they’re really not sure what cloud computing is. The survey, conducted by Virtacore Systems, surveyed workers in companies with 100 to 1,000 workers. About 48% of IT professionals aren’t sure what cloud computing is, according to the survey, and when you factor in non-IT professionals in those organizations, about two-thirds (more than 64%) have yet to understand the concept of cloud computing. The cloud’s potential cost reduction also appears to be a well-kept secret, as 47% cite lack of funding as the chief hurdle to cloud adoption in their workplaces. Even among organizations that use Gmail, Google Docs, and other such platforms, 54% of those surveyed did not recognize those as being cloud-based.

### Analysts Expect Bank Tech Spending Boom

According to research from consulting firm Ovum, a push for banking technology spending is on its way in the next five years. Ovum’s “Retail Banking Technology Spending Model Through 2015” report predicts that bank tech spending will increase 24% annually on average, climbing to a whopping \$132 billion by 2015; in the United States alone, Ovum predicts 23% annual growth to total \$50 billion in 2015. The firm attributes the expected increase to investments in technology that aids in regulatory compliance, as well as tech that strengthens online banking options for consumers; specifically, Ovum predicts spending of \$9.7 billion on online banking technologies and \$7.2 billion on risk management, security, and compliance management technologies.

### Windows 7 Use Tops 20%

Statistics from Net Applications show that Windows 7’s share of the market reached 20.9% in December, which was up 1.2% from November and marked the first time it topped the 20% mark. Windows Vista’s



share fell from 12.6% to 12.1%, which was the lowest percentage Net Applications has seen since July 2008. Moreover, Windows 7 has surpassed the peak numbers of Windows Vista, which hit 18.8% at its highest share in October 2009. Over the course of the past year, Net Applications data shows that Windows’ share of the market dropped by 2% to 90.3%.



# Supporting Mobile Users

Make Sure Your Network & Support Technicians Are Up To The Task

by Holly Dolezalek

IT AND DATA CENTER MANAGERS know the productivity gains that mobile devices offer a company’s employees and bottom line. But they also know that supporting those mobile users can put demands on the network—and

### Key Points

- Mobile users may not add a lot of traffic to your network generally, but they may create spikes that you’ll have to provision for.
- As more devices with different OSes and technologies access your network, your support division may see a much higher workload if they have to support every device. Specialization, rather than cross-training, may be the answer to those expanded workloads.
- Mobile users use the network at all hours, so the more you know about how they work, the better you’ll be able to support them.

on the tech support division—that management may not have thought through.

“Mobile devices have different OSes, carriers, technology, and bandwidth they use, and they introduce a different set of complexities that traditional users don’t create,” says Ali Hedayati, COO and president of Coradiant ([www.coradiant.com](http://www.coradiant.com)). “What it comes down to is almost the individual level of end users: those users’ experience on mobile applications.”

Mobile users’ demands show up principally in three areas: the VPN, network traffic, and tech support.

### The VPN

As the avenue of choice for mobile users, the importance of the VPN obviously increases with the number of mobile users accessing it. And it sometimes increases exponentially instead of linearly, because of the complexity that mobile users add to the equation. Mobile devices are often installed with more than one VPN client, and that can get more complex depending

on which of potentially several mobile devices a single user is using. “Ten or 15 years ago, you had a standard desktop attached to the Ethernet and IT decided what software would get installed,” says Nathan McNeill, vice president of product strategy for Bomgar ([www.bomgar.com](http://www.bomgar.com)). “Now, you’ve got employees taking their laptops home and plugging in from all kinds of locations, and there are firewall issues depending on where they plug in.”

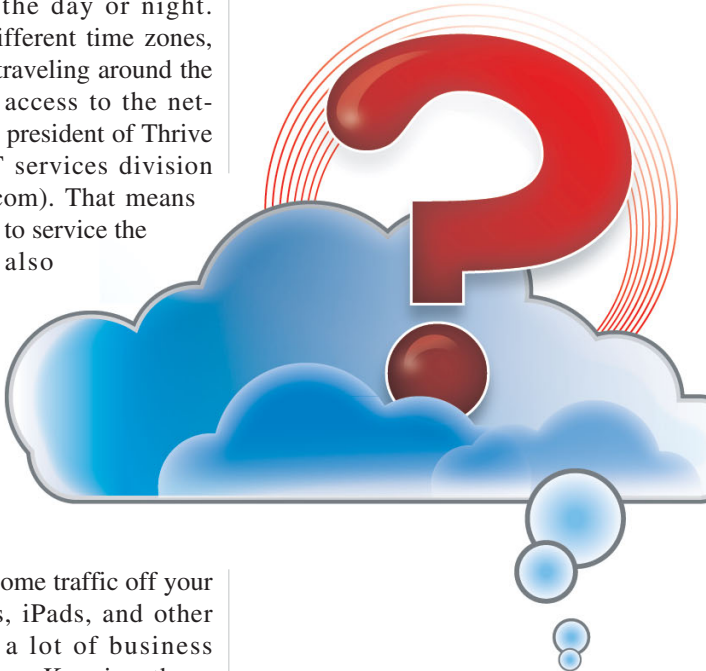
Mobile users put other types of demands on the VPN, and not just because there are more of them. Unlike traditional office-bound employees, who are likely to use the VPN during the same hours they would ordinarily be in the office, mobile users by definition are on the go and might be on the VPN at any hour of the day or night. “Mobile users are in different time zones, and sometimes they’re traveling around the world, and they need access to the network,” says Jim Lippie, president of Thrive Networks, Staples’ IT services division ([www.thrivenetworks.com](http://www.thrivenetworks.com)). That means not only being prepared to service the VPN at any hour, it also means warning mobile users when big jobs are likely to tie up the network at hours when ordinarily nobody would be using it.

### Network Traffic

Mobile devices take some traffic off your network. Smartphones, iPads, and other devices take care of a lot of business through a Web browser. Keeping those device users plugged in and able to get where they need to go enables them to use

somebody else’s infrastructure to conduct that business.

On the other hand, mobile users can create spikes in traffic that may affect network performance. That means that the more you know about how users are working remotely, the better able you’ll be to provision for those spikes and keep them from affecting other users. “Mobile users are typically able to operate in a casually connected environment, which means they don’t require persistent connectivity,” says Brent Felker, vice president of field mobility for DecisionPoint Systems ([www.decisionpt.com](http://www.decisionpt.com)). “So they might be in a basement or going through a tunnel and lose connectivity but keep operating. But when they go



# Trimming The Costs Of A Mobile Workforce

Implement Smart Policies & Take Advantage Of Available Resources

by Cynthia Harvey

IN A RECENT SURVEY of 200 IT professionals, mobility solution vendor iPass ([www.ipass.com](http://www.ipass.com)) found that the average company spends more than \$120 per month per mobile employee. And 42% of those surveyed believed their mobility costs would increase at least 5% in the next 12 months.

What’s driving mobility costs up? First, the number of people who use smartphones for work is increasing rapidly. Second, those with smartphones are downloading more data. Because most carriers have switched from “all-you-can-eat” to tiered pricing plans, companies are incurring higher costs for those data downloads. In addition, companies incur development costs when they build new applications or adapt existing applications for smartphone users.

Michele Pelino, principal analyst at Forrester Research, says that complexity is also a significant factor in mobility costs. She points out that most enterprises

### Key Points

- The average company spends more than \$120 per mobile employee per month for mobility, according to iPass, and those costs are rising.
- Mobility management solutions can help companies reduce costs by enforcing company policies, preferring Wi-Fi connections over 3G connections, and simplifying the experience for end users.
- Conducting a mobility audit, modifying company policies on mobile phone use, and increasing use of app stores and cloud computing may also help enterprises reduce their mobility costs.

support multiple devices, multiple operating systems, multiple carriers, and a huge array of applications. “There are costs associated with the ongoing support for those applications, devices, and operating

systems,” she says. “That’s where the costs start adding up.”

In order to reduce these rising mobility costs, companies can take several steps, including auditing their mobility use, changing their company mobility policies, deploying mobility management solutions, and taking advantage of app stores and cloud computing.

### Audit Your Current Mobility Use

According to Kevin Murray, vice president of product marketing at iPass, companies that conduct an audit of their current mobility use typically reduce their costs almost immediately.

“What we’ve found is when companies identify the usage patterns of those devices, they often find, for example, some of them are not being used or are just being used once a month,” Murray says. “If you recommission or decommission those subscriptions, you can save 30% very, very quickly.”

### Change Your Company Mobility Policies

As costs rise, companies are also beginning to write or rewrite policies regarding who gets company-funded phones and how those phones can be used. In a report titled “Managing Mobile Complexity,” Pelino explains that nearly 30% of firms have already reduced the number of workers who qualify for company-paid mobile voice and data services, and an additional 17% are planning to take similar measures within 12 months.

The same study also found that 29% of companies are restricting or blocking access to certain Web sites in order to limit data use and thus reduce charges. An additional 14% of companies plan to take this step within the next year.

Other cost-cutting policies include replacing lost phones with refurbished instead of new ones, waiting longer to



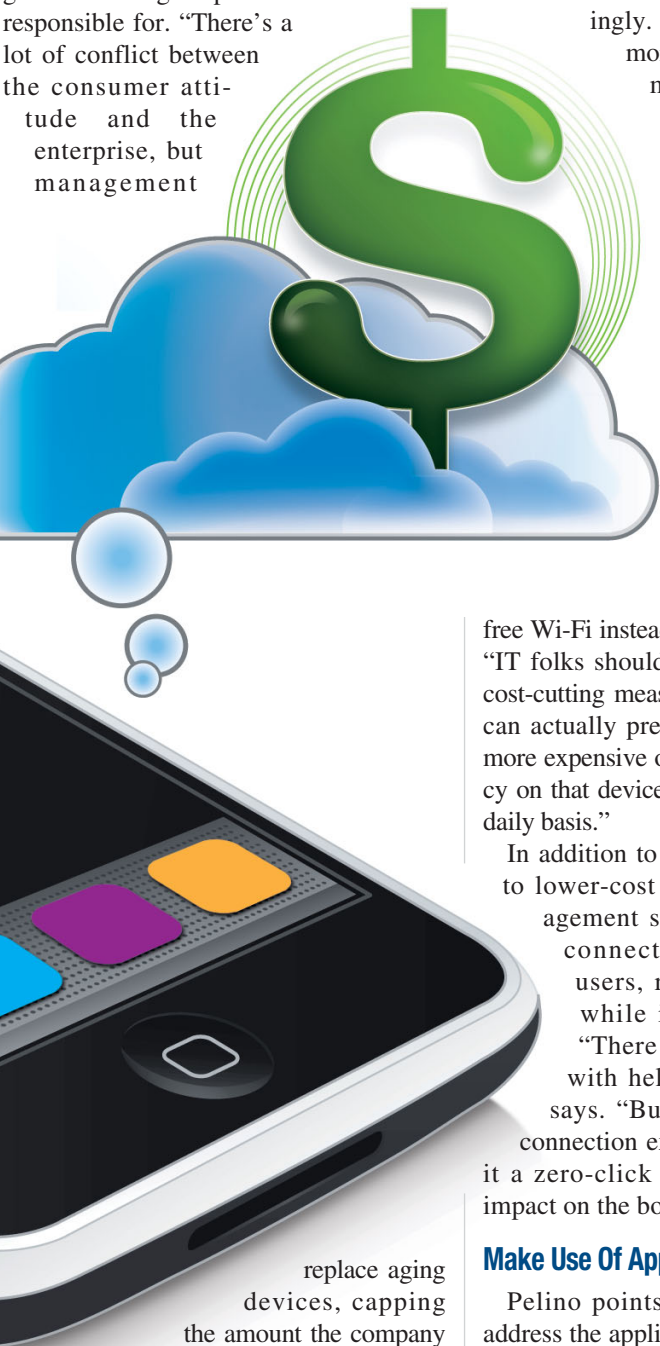


back in, they blast all of that information up to the network, and you'll see spikes in usage.”

The best way to know whether a mobile application or set of users is going to make traffic demands is to find out whether the application is a new one or an existing one that is accessed both traditionally and through mobile access. “If it’s an existing solution, there won’t be additional data, and it just increases the speed at which that data is input,” says Robert Russell, senior solutions architect for field mobility for DecisionPoint. “A new application will have more of an impact on the network, although that varies from application to application.”

Supporting It All

Lippie suggests that management has to help IT control the services that it provides to end users. Instead of offering every single end user every possible option with mobile devices or remote access, he says, standardizing can help limit the number of devices or technologies the IT group has to be responsible for. “There’s a lot of conflict between the consumer attitude and the enterprise, but management



replace aging devices, capping the amount the company will reimburse employees for mobile use, or requiring some employees to pay for devices themselves.

Deploy A Mobility Management Solution

Some organizations are finding that they can drive down mobility costs even further by implementing technological solutions that control what employees can and cannot do with their phones. A growing number of vendors offer mobile mobility management solutions that can help companies block certain types of activities, implement security measures, or cut mobility costs in other ways.

Murray explains that one of the biggest ways mobility management solutions can help cut costs is by requiring employees to connect with lower-cost networks, such as

To Support Or Not To Support?

As more consumer mobile devices hit the market, you'll see more of them trying to access your network. But supporting them all might be too much for your support division. If you're going to argue for supporting some devices and not others, one sensible criterion might be how easy or difficult a given device is to support.

For example, some devices have the same capability as desktops to present the screen to a tech support representative for troubleshooting. Another criterion might be whether the device has functionality for security or data integrity built in. For example, iPads have the same remote wipe functionality that BlackBerrys and other devices do. But then again, as a consumer-oriented device, the iPad is quite likely to have both personal and company data on it. “Apple has built that into the tool, but as a consumer-oriented device, there isn’t much granularity,” says Troy Harrison, vice president of product management for Bomgar. “That device can be wiped remotely, but it’s going to wipe everything, including personal data.”

has to help the IT group manage its resources most effectively,” Lippie says. “Sometimes that means creating policies that your employees don’t like.”

One helpful criterion for that support might be manufacturer support. Consumer-grade devices aren’t really expected to last more than a couple of years, and providers often calibrate their tech support accordingly. But other devices that are more rugged are likely to have more support from manufacturers and providers because they’re expected to last longer.

But at the same time, you may have to be prepared for pushback from users with a compelling argument: Whatever devices they’re using, they’re trying to get the same work done as they would be in the office.

“It used to be that IT could wag a finger and make you come in because they couldn’t resolve your problem if you were on a non-standard device,” Bomgar’s McNeill says. “But with the flood of new devices and the increasing number of mobile workers, it gets harder to do that, and the support department just has to step up.”

Without the option of saying no, the tech support division’s saving grace might be specialization. Instead of spending the time and money to cross-train all employees on all the permutations of OS, device, and technology, McNeill suggests, it might be better to take a collaborative approach to support. “Look at it as, somebody is always going to pick up the phone, but then behind the scenes, there are specializations that collaborate with your first-tier support people to resolve the issue,” he says. “You’re not likely to get extra resources, so it becomes a matter of how you segment your resources and organize them to their greatest effect.”

free Wi-Fi instead of 3G, whenever possible. “IT folks should really look at Wi-Fi as a cost-cutting measure,” Murray says. “If you can actually prefer cheaper networks over more expensive ones just as a matter of policy on that device, you’re going to save on a daily basis.”

In addition to requiring users to connect to lower-cost networks, mobility management solutions can simplify the connection experience for end users, reducing help desk costs while increasing productivity. “There are real costs associated with help desk support,” Murray says. “But when you automate the connection experience, when you make it a zero-click experience, it has a real impact on the bottom line.”

Make Use Of App Stores & The Cloud

Pelino points out that enterprises can address the application development portion of mobility costs by taking advantage of two of the biggest current technology trends: app stores and cloud computing. She says that companies are beginning to realize they “don’t want to allocate internal resources to app development if they can get somebody to help from the outside or get an off-the-shelf solution.”

Instead of developing mobile apps in-house, enterprises are starting to turn to app stores. Currently, 27% of enterprises say they acquire apps from an app store operated by a device manufacturer (such as Apple, RIM, or Nokia), and 24% say they purchase apps from a store operated by a carrier (such as AT&T, Sprint, or Verizon Wireless). These apps typically cost just a fraction of the amount that it would cost companies to develop their own apps.

Cloud computing also offers SMEs potential cost savings—or at the very least, a chance to make costs more predictable. “The ‘as-a-service’ model gives firms a sense of what the cost per employee per month is. . . . And only paying as you need it or as you use it is quite appealing,” Pelino says.

The Financial Benefits Of Mobility

Although the costs associated with supporting mobility can be significant, Kevin Murray, vice president of product marketing at iPass (www.ipass.com), says that expanding your mobile workforce can actually improve an organization’s bottom line. “Our latest mobile workforce data uncovered that mobile workers actually put in 240 more hours of work per year as a result of their mobility,” he says. “That’s pretty staggering.”

Similarly, Michele Pelino, principal analyst at Forrester Research, found that “three-quarters of firms reported that they achieved increased worker productivity as a result of deploying mobile applications.” In addition, 65% said mobility increased responsiveness and decision-making speed. Other benefits included faster resolution of IT issues and improved customer satisfaction.

In light of these benefits, these experts advise organizations not to take their cost management efforts too far. Although trimming some mobility costs can be helpful, restricting mobility use too much can actually have a negative impact on the company’s finances.

Intel Makes Concessions To EU In Plans To Acquire McAfee

Intel has offered concessions to the European Union in an attempt to speed the process of gaining the EU’s approval of the company’s proposed McAfee acquisition. Although detailed information on the concessions wasn’t released, they’re meant to ease the EU’s concerns over competition. As a result, the EU has postponed its ruling until late January. In August of last year, Intel announced its intent to purchase McAfee for about \$7.7 billion. Intel plans to incorporate McAfee security technology into its chips. The United States FTC approved the acquisition in December; Intel still expects the deal to close in the first half of this year.



iGate To Buy Patni

iGate, self-described as a “business outcomes-driven integrated technology and operations solutions provider with a global delivery model,” has announced that it is acquiring the larger business process outsourcing and IT services firm Patni Computer Systems of Mumbai, India. The \$1.22 billion transaction between the two outsourcing companies should create an entity with more than \$1 billion in revenues, according to a joint statement. Surpassing that threshold, the companies say, will net them access to larger customers in vertical markets. iGate expects to close the deal before the end of the first half of this year.

Trade Adjustment Assistance Could End

Stateside IT workers who lost jobs due to outsourcing have been eligible for benefits from the TAA (Trade Adjustment Assistance) program since 2009 after revisions to the program were made as part of the stimulus plan. However, those benefits will end Feb. 12 unless Congress again intervenes. Proponents of the TAA, a program founded in the 1960s, are campaigning for an extension, but the fate of the funding for tech workers remains uncertain. The benefits include money for college, job search expenses, moving costs, and a tax credit.

Consortium Withdraws Filing To Purchase Novell Patents, But Not Forever

The open-source community celebrated upon news that the members of tech consortium CPTN Holdings—including Microsoft, Apple, EMC, and Oracle—had withdrawn the consortium’s filing to purchase 882 Novell patents. However, CPTN Holdings says that the withdrawal does not mean it does not intend to purchase the patents; rather, the move was “a purely procedural step necessary to provide time to allow for review of the proposed transaction,” Microsoft said in a statement. The consortium’s purchase is opposed by groups such as the Open Source Initiative and the Free Software Foundation Europe, which believe that, because the companies that make up the consortium offer products that compete directly with open-source offerings, the purchase of these patents would hinder competition.



# Data Backup & Disaster Recovery

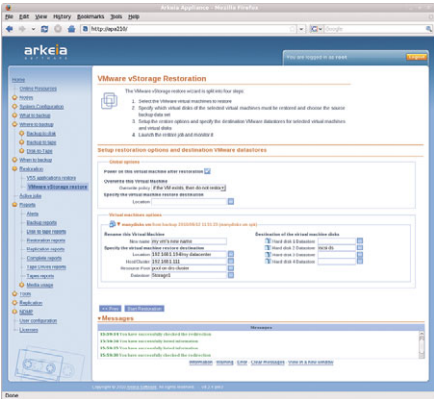
Product

Description

Arkeia vStorage Virtual Appliance

C2C ArchiveOne Enterprise

CommVault Simpana 9

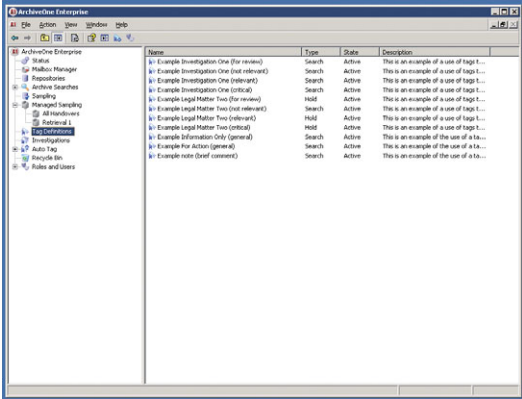


Arkeia's vStorage Virtual Appliance is a comprehensive backup and recovery tool for VMware vSphere 4 platforms and VMware Infrastructure 3. The virtual appliance includes Arkeia vStorage Backup Agent and can be rapidly deployed in and be used to back up any vSphere hypervisor. Arkeia vStorage Backup Agent enables local and over-the-network backups to disk, tape, or to disk and then tape, and backup sets can be replicated locally or over a WAN.

- Management through Arkeia's Web-based interface
- VMware CBT (Changed Block Training)
- vCenter integration, vApp support, and RDM (Raw Device Mapping)
- Enables full, incremental, and differential backups
- Includes one year of maintenance

**Best For:** VMware vSphere environments.

**Price:** \$1,500 per VMware hypervisor

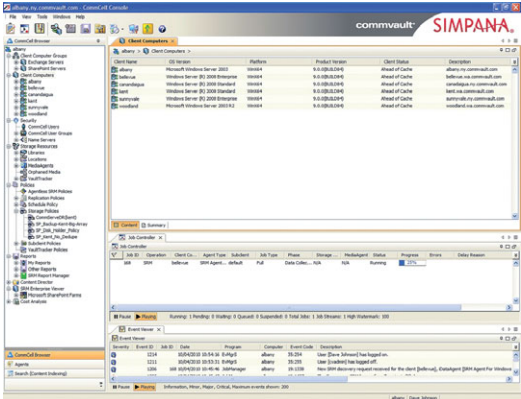


C2C's ArchiveOne Enterprise is designed to give Exchange administrators a simple yet sophisticated tool to improve the health of the email system and deliver greater efficiency of storage and unrivalled power to both live and archived data. ArchiveOne Enterprise is designed to remove all unwanted email and other data items from live Exchange servers, enforce corporate e-policies, and search email with an unlimited scope. ArchiveOne Enterprise can be installed in about one hour, with little training needed.

- Fully automated mailbox quota management
- Advanced PST discovery and management
- Extensive retention period controls
- E-discovery for performing forensic searches

**Best For:** Situations requiring sophisticated archiving, retention, e-discovery, and compliance with an easy learning curve for users.

**Price:** \$25 per seat



CommVault Simpana 9 eliminates the need for a myriad of disparate point-level products; reduces costs; and is inherently flexible, efficient, scalable, and adaptable. The tool offers modern data management with a tightly integrated blend of snapshot management, replication, and persistent copies designed to be secure, deduplicated, managed, and accessible through a single, unified platform. Simpana 9 can quickly create copies that are highly available by integrating and leveraging hardware array-based snapshot technologies and can move data efficiently to disk, tape, or cloud storage. Data can be easily recovered for disaster recovery, data mining, e-discovery, or compliance.

- Massive virtualization performance and scalability
- Efficient data deduplication for improved network transfer while cutting the backup window in half
- Simplified licensing, administration, and management
- Enhanced migration capabilities and services

**Best For:** Companies that require significant control over data with optimal protection in a variety of storage environments.

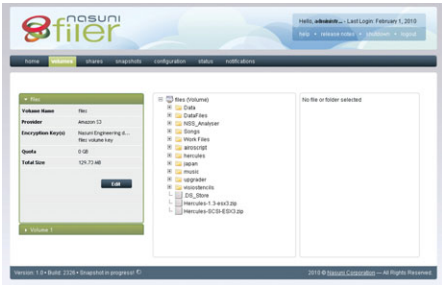
Product

Description

Nasuni Filer

Quantum DXi4500

Quantum Scalar i40/i80




The Nasuni Filer is a virtual NAS appliance that offers traditional NAS capabilities via the cloud. The Filer is designed to make file access, storage, and protection easy and inexpensive by removing costs associated with hardware. Features include the ability to monitor cache, manage volumes and performance, and set file protections, and the Filer supports Active Directory, file encryption, deduplication, and synchronous snapshots.

- Simple to set up and use
- Ability to choose from a variety of different cloud providers, including Amazon Web Services and RackSpace Cloud
- Easily scalable
- Can be configured for primary or secondary storage

**Best For:** Leveraging the cloud to store and protect the expanding file volumes offsite while retaining the local performance and functionality of an advanced NAS appliance.

**Price:** \$300 month to month; \$250 with one-year prepay; \$200 with two-year prepay




Quantum's DXi4500 appliances are turnkey solutions that can be deployed seamlessly with all leading backup software using a simple NAS interface. They are designed for rapid, seamless integration and maximum client performance without changes to existing backup architectures or potentially disruptive media server upgrades, unlike software-based deduplication. Each DXi4500 model includes support for remote replication, virtual environments, and Symantec's OpenStorage interface as standard features.

- Data deduplication in an easily shared NAS device
- Two preconfigured models with 2TB or 4TB usable capacity
- Reduces typical disk capacity needs by 90% or more through deduplication

**Best For:** SMBs and branch offices in distributed sites that are seeking an affordable disaster recovery solution.

**Price:** Starts at \$12,500



Quantum's Scalar i40 and i80 are intelligent tape libraries for small and medium-sized businesses and remote office environments of larger enterprises that are looking to save time and money spent on storage management. With embedded iLayer technology, the i40 and i80 provide users with simpler tape management, fewer service calls, and market-leading investment protection through capacity-on-demand scalability.

- Simplifies tasks, including initial setup, ongoing management, and adding capacity over time
- Reduces library management time by 50%
- The i40 scales from 25 to 40 slots, and the i80 scales from 50 to 80 slots with a software license

**Best For:** SMBs and remote office environments.

**Price:** i40 starts at \$7,500 MSRP; i80 starts at \$9,400



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Seth Colaner

## DataRecovery.com



DataRecovery.com's services are designed to be both affordable and fast, with a range of data recovery options available for every budget and every data loss situation. DataRecovery.com can recover data from everything from a single hard drive to a RAID storage array. The company has developed a strong reputation worldwide during its 12-year history, with a division focused on RAID, SAN, and NAS storage that is frequently used by Fortune 500 companies.

- No data, no-charge guarantee
- Supports every data storage medium, including tapes and servers
- 24/7 and onsite services for critical situations
- Different pricing and turnaround levels available

**Best For:** Enterprises needing data recovered from virtually any failed system.

**Pricing:** Starts at \$500 for single drive recovery

**Contact:** (800) 237-4200 | [www.datarecovery.com](http://www.datarecovery.com)

## Idealstor Bantam



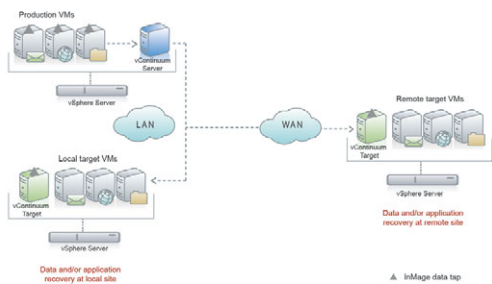
The Idealstor Bantam is a removable disk backup system that combines the best of disk and tape by using 2.5-inch SATA disks as backup media, which can then be sent off-site for storage and disaster recovery. The Bantam is priced for SME budgets but has features that meet the needs of larger enterprises, as well. The system features data transfer rates of up to 480MBps and is bundled with iBac Data Protection Software from Idealstor.

- Complete backup system offering up to 1TB of removable disk capacity
- Disk capacities of 320GB, 500GB, 750GB, and 1TB currently available
- Includes iBac 5.0 for native format backup and drag-and-drop restore with data deduplication
- Bantam cartridges are housed in a rugged aluminum frame and are shock-proofed

**Best For:** Replacing tape backup with a faster, larger, and more reliable backup media.

**Price:** \$299 for docking station with 320GB cartridge

## InMage vContinuum



InMage vContinuum is a disk backup and disaster recovery tool for VMware ESX/vSphere virtual machine environments. Designed to be cost-effective for SMEs, vContinuum requires only a server, management console, and a master target VM on the secondary ESX/vSphere host to implement, and it can scale easily. By extending backup and disaster recovery solutions to physical servers through a seamless upgrade to InMage Scout, vContinuum is designed to offer a consistent approach to protect, manage, and recover both virtual and physical environments.

- Elimination of backup windows (data is backed up to disk real-time 24/7)
- Application-consistent recoveries on Windows and Linux
- Long-term data retention on disk
- File-level recovery within seconds
- Optimized utilization of target storage capacity (target VMs are thin provisioned)

**Best For:** Backup and replication in virtual environments.

**Price:** Starts at about \$4,000 per ESX server

## Spectra Logic Midrange T-Series Tape Libraries



The Spectra Logic T-series of tape libraries include the Spectra T200, T380, and T680, which are designed with scalability in mind. Built on the company's TranScale architecture, the tape libraries feature interchangeable components that make scaling up easier. With up to 2PB of storage capacity, the tape libraries also feature free encryption key management; media, drive, and library health monitoring; and partitioning and remote management.

- Management via Web browser for easy operation
- Built-in BlueScale AES 256-bit encryption and key management
- Monitors its own drives, power supplies, controller, and robotics
- Media Lifecycle Management and Certified Media tools detect media errors before they happen

**Best For:** Midrange data centers.

**Price:** Starts at \$36,380

## Spectra Logic T50e Tape Library



The Spectra T50e tape library features 30TB to 150TB of storage (thanks to LTO-5 tape storage technology) in a 4U rackmount system and supports transfer rates of up to 280MBps. Designed to offer enterprise-class features to the SME market, the T50e runs the BlueScale management interface and features free encryption key management; partitioning and remote management; and media, drive, and library health monitoring.

- Management via Web browser for easy operation
- Built-in BlueScale AES 256-bit encryption and key management
- Monitors its own drives, power supplies, controller, and robotics
- Media Lifecycle Management and Certified Media tools detect media errors before they happen

**Best For:** SMEs and remote offices.

**Price:** Starts at \$13,995

## TOLIS Group bruAPP



The bruAPP™ backup appliance resolves the issues of configuration, installation, and compatibility faced when implementing a networked system backup strategy. Proven reliability, cost-effectiveness, scalability, and client system software agents available for all modern operating systems are delivered without the requirement for heavily experienced system/network administrative personnel. Tightly integrated hardware components, and the venerable BRU™ software, provide backup and restore services independent of any server on the network. 1U to 7U models are available to provide D2T, D2D, and D2D2T operations; up to 28TB of net RAID disk stage capacity (RAID 5 + hot spare); and internal tape technology up to eight drives and 96 slots.

- Enterprise-grade client/server backup services
- Windows, Linux, and Mac OS X management consoles
- Plug-and-play installation and intuitive operation
- Totally self-contained using server-grade components

**Price:** Starts at \$2,899

**Best For:** Enterprises in need of a complete backup and restore appliance.

**Contact:** (480) 505-0488 | [www.tolisgroup.com](http://www.tolisgroup.com)



## Social Networks & Apple Products Prime Cybercrime Targets In 2011

McAfee Labs has released its 2011 Threat Predictions report that outlines new attacks on and vulnerabilities in social media, mobile phone usage, applications, and Apple products. The security company is predicting that attackers will aim at Facebook, Twitter, and GPS-enabled services such as Foursquare to engage in targeted phishing attacks, short URL service abuse, and locative service abuse.

McAfee reports that cybercriminals will be able to retrieve real-time data from tweets, including the Twitter user's location, interests, operating system, and current applications. The increasing globalization of mobile phone usage will be a catalyst for greater mobile platform assaults. Consequently, mobile phones' weak spots will be their application marketplaces.

In light of these new tactics, users need to be more conscious of the apps they are installing and be aware that they may be sharing personal data on their phone without their knowledge, says Sam Masiello, director of messaging security at McAfee Labs.

"Users need to be aware of the risks when installing these applications and what privacy they are potentially giving away," Masiello adds. "Whether it be applications that you are installing to your Facebook profile or onto your mobile device, be aware that the likelihood of your personal data being made available to the developers of those programs is very high. From there, that data will likely be used for additional marketing by the company who created the app and also sold to others for profit."

### Apple Under Attack

Social networking sites and mobile apps aren't the only targets gaining attention. The Mac OS platform is gaining market share, and as such, it is becoming a more popular victim of malicious attackers, so consumers must turn concern into defensive action when it comes to protecting Apple products. "The easiest path to compromise tablet and media player devices like the iPad and iPod touch is also through installed applications. As a security industry, we need to be reacting quickly to the consumerization of IT," Masiello says.



"While it's true that the Mac OS platform is becoming more attractive because of its increasing market share, it is also more alluring because it has become more popular amongst very affluent people like CEOs, CFOs, and other company executives," Masiello adds. "These higher-value targets are sometimes not as technology-savvy, leaving them more vulnerable to a targeted attack."

Inevitably, mobile devices of all platforms—Apple or otherwise—will make their way into organizations, so IT must start thinking about how they are going to create and enforce policy and provide tools to secure these devices, Masiello concludes.

by Joanna Clay

# HOW TO Evaluate Your Risk Of A Cyber Attack

### Stay Vigilant, Stay Secure

by Brian Hodge

• • •

**CHANCES ARE THAT** your company experienced a cyber attack in the past year. According to a 2010 Symantec study, 75% of all responding organizations experienced at least one attack during the previous 12 months. For the well-prepared IT department, it isn't a question of if another attack is coming, but when.

Pete Schlamp, vice president of marketing and product management of network forensics specialists Solera Networks ([www.soleranetworks.com](http://www.soleranetworks.com)), sees 2010 as a pivotal year in enterprise security, "where enterprises woke up and said it's not OK just to plug in a bunch of devices, sit back, and pray."

Getting more hands-on with security begins with assessing your appeal as a target and your possible vulnerabilities. It could well determine whether that next attack succeeds or fails.

### Who & What Are Most At Risk

The most common attack losses involve thefts of intellectual property, customer credit card numbers or other financial data, and other personally identifiable data. Although any business can potentially be the target of a cyber attack, Schlamp

identifies three types of companies that are at greatest risk:

**Companies that develop high-value intellectual property.** Any type of tech company you might find in Silicon Valley, whether they're actually located there, is a high-risk target. Less obvious are manufacturers with patentable processes. Both are especially attractive targets to people in foreign countries who lack the expertise or resources to do their own R&D. In addition, service vendors that handle data for these companies can also be targeted.

**Companies in the financial services industry.** The two most common attacks are stealing people's personally identifiable information and manipulating transactions.

**Companies involved in critical infrastructure.** This covers a broad range of businesses, such as energy companies and manufacturers that furnish infrastructure-related products. Also, in an information economy, data storage companies are considered a vital part of the infrastructure.

Even if none of these sound much like your company's core business, that's no reason to rest easy.

"Today's hackers are well organized and operate like a for-profit business, and this means they try to get data that's worth something to them," says Luther Martin, chief security architect at Voltage Security ([www.voltage.com](http://www.voltage.com)). "If you have data they can profitably steal, they'll go after it."

### Additional Factors

Although company size does matter, it's not always big companies that are targeted. True, big businesses tend to have deeper data mines that make them appealing targets. However, if you're working at a small company, don't be lulled into a false sense of security.

Schlamp says that according to a source at the UK foreign trade council for the United States, other countries don't necessarily look at large companies as the ones that are creating the IP that's actually really valuable. Instead, "they're more interested in looking at the smaller companies, because that's where innovation starts."

Also, according to Alan Hall, Solera Networks' director of marketing, attackers may regard small, specialized companies supporting major contractors as entry points into the larger operation.

### Think Like The Bad Guys

Attackers typically hit enterprises by targeting any of the numerous weak points in their network components, such as the firewall, Web server, and operating system. Fortunately, many tools—most free or inexpensive—will let you duplicate the first steps an attacker would take: scanning for common vulnerabilities, checking for weak passwords, checking for common Web application vulnerabilities, and so on.

"Every IT department should routinely run these tools against their own systems to make sure that the obvious problems are found and addressed," Martin says. "If you don't find a weakness first, hackers will find

### Key Points

- The types of companies at greatest risk for cyber attack are those that develop high-value intellectual property, are in financial services, and are involved in critical infrastructure.
- Many free or inexpensive tools are available that will let you probe for weaknesses by duplicating the first steps attackers would take.
- Rather than approaching risk assessment with snapshot-in-time thinking, it's something you have to be engaged in daily.

it for you. So identify your sensitive data, identify the ways in which a hacker could get that data, and then do your best to make sure that they can't do any of them."

It doesn't take military-grade measures to thwart most attacks. Verizon's 2010 Data Breach Investigation Report found that 85% of attacks resulting in a data breach were not highly difficult for attackers, requiring neither high skill levels nor significant resources. And 96% of breaches could have been stopped through the use of controls classified as either "simple" or "intermediate."

"It certainly looks like we're making it easy for hackers to do their job," Martin says.

### It Came From Within

According to Solera Networks' "Second Annual Network Forensics Market Survey," 96% of IT and security staff feel threatened by employee Web activity. Obviously, employee education is vital to protecting the enterprise, but how can IT determine if user education has actually sunk in?

Martin recommends creating emails that simulate phishing attacks and seeing how many employees fall for them.

Much trickier to deal with are deliberate thefts by insiders who have legitimate access to sensitive data. "In many cases, audit logs are your best way to discover internal attacks, but those may not actually tell you anything useful until an attack has already happened," Martin says.

### Eternal Vigilance

Solera Networks' Schlamp cautions against approaching risk assessment with snapshot-in-time thinking: that you're either secure or you're not.

Risk isn't something that only needs to be assessed periodically, like disaster recovery plans. Exploitable weaknesses are constantly being uncovered, and attackers' methods are continually evolving.

"That's the message that has to get out there: you have to be doing this every day," Schlamp says. "You have to have situational awareness every day, and you need to have an instant response plan that allows you to respond to incidents as quickly as possible."

Eternal vigilance isn't just the price of liberty. It's also the price of continued operational security. ■



CLOUD TIPS & TRICKS

# Security In The Cloud

Many Opportunities Exist That Can Help Reduce Risks

BY CARMi LEVY

AS INCREASING NUMBERS of small to mid-sized enterprises accelerate their shift into the cloud, security is becoming top-of-mind. Security is a critical competency if IT is going to do cloud computing properly. David Senf, IDC Canada’s infrastructure solutions research director, says security tops the list of reasons why companies aren’t investing in cloud-based technologies. Although availability and customization limitations are also among the top

concerns, Senf says addressing security concerns early can go a long way toward driving project success. Consider the following tips to ensure data, apps, and infrastructure remain as secure out there as they do within the firewall.

Assess Your Current State Realistically

Misunderstanding the true effectiveness of existing security tools and protocols can cast an early—and often negative—pall on cloud implementations. Senf says IDC research shows security is the top area where companies think IT is doing a good job. “If you believe you’re secure and if you believe cloud solutions are less secure, which is what most organizations think, then there’s a natural obstacle towards moving toward the cloud,” he says. Getting real about how effective current security processes are can help position the organization for a more secure cloud-based future. Assess Data For Cloud-Worthiness Most organizations should be paying more attention to the security sensitivity of their data. By understanding what

data can be trusted to be stored, accessed, and managed in the cloud and what data is best left out-of-scope for cloud deployment, organizations can more precisely manage stakeholder risk. Similarly, some apps, such as real-time, transaction-based services, may be better suited for cloud deployment than others. “You have to start asking questions around risks and data sensitivity, and you have to begin looking more closely at your inventory of applications, which not a lot of companies do,” Senf says. “They say they do, but they don’t.” The benefits of this approach can be particularly beneficial in heavily regulated sectors. Boost Network Redundancy Network performance is especially crucial in the cloud, as local functionality is often completely lost if connectivity fails. Routine outages can quickly become business-threatening events in a heavily cloud-based environment. Security in the cloud, then, is as much related to access as it is to protection. “While networks are fairly robust, do make sure you have redundancy in your networks in case one access method goes


down, so you can use the backup and still access the cloud service,” says Jack Gold, president and principal analyst of J.Gold Associates. Gold says network traffic should also be completely encrypted to mitigate exposure in the event of data interception.

Tie Hardware Refresh To Cloud-Based Security Competency

Although some IT professionals believe cloud investments go hand in hand with hardware removal from the data center, it’ll be awhile before full-on cloud migrations result in complete removal of all corporate data center hardware. Network devices such as routers and switches, for example, increasingly incorporate cloud-aware security capabilities directly into the hardware. This tightens IT’s control over data integrity just as it reduces staff workload. By incorporating this thinking into its acquisition strategy, IT ends up with a more secure, efficient, and agile data center. The benefits don’t end there. “More security embedded at the physical layer is good news for performance,” says IDC’s Senf. “It establishes a solid foundation for security at the virtual layer, as well.”

Top Tip: Split Up The Cloud

Security is often based on control, and tossing everything over the wall to a third party can leave IT out of the loop in the event of a breach or data loss event. Jack Gold, president and principal analyst of J.Gold Associates, recommends a compromise approach. “Think about splitting up the cloud between on-premises and off-premises,” he says. “That way, you can keep some control of the processes and data while still taking advantage of the cloud-based services available from [major providers].”



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# Advanced Evasion Techniques

## Cybercriminals Up The Ante

by Sixto Ortiz Jr.  
• • •

**TODAY, THE MOTIVATION** for cybercriminals has evolved beyond simple hacker bravado and into actual money-making opportunities. Perhaps most alarmingly, rogue states across the world are keenly interested in using digital methods to steal information, so cybersecurity is now a very real national security issue.

AETs (advanced evasion techniques) are not a new type of threat per se, but rather a new way to deliver existing threats. The cybercriminal arsenal is quite extensive, so many times the key issue is figuring out how to deliver these threats. Read on to learn more about AET and the steps organizations need to take to protect themselves.

**AETs Defined**

So, what are AETs? In a nutshell, AETs can be considered a Swiss Army knife of evasion techniques. In other words, instead of relying on a single method to deliver a malware payload, AETs leverage multiple evasion techniques simultaneously to defeat network defenses.

Matt McKinley, U.S. director of product management for Stonesoft ([www.stonesoft.com](http://www.stonesoft.com)), uses the analogy of a

system designed to recognize speech patterns on a phone system to ferret out suspicious language, such as “terrorist plot.” Such a system could be foiled if a different language were used in a conversation, although this evasion technique could be easily defended by simply making the system conversant in that language. AETs up the ante, adds McKinley, by using a combination of languages; since there are several hundred languages in use today, he adds, this represents a significantly larger possible set of combinations that must be matched to protect the system.

Matt Watchinski, senior director of the Vulnerability Research Team at cybersecurity provider Sourcefire ([www.sourcefire.com](http://www.sourcefire.com)), says there aren’t AETs, but simply evasion techniques, which he defines as any technique or method used to conceal malicious content from known detection techniques. Examples of known evasion techniques, he adds, include using Javascript to encode malware payloads and IP segmentation/TCP segmentation, where an attack is disguised by breaking it up into smaller portions (requiring the intrusion detection system to reconstruct the message before it is able to detect the attack).

### The AET Threat

For appropriate defenses to be devised, administrators must understand the kind of threat that AETs pose to organizations today.

Stonesoft’s McKinley says it’s important to understand that AETs themselves are not a threat; rather, AETs serve as a way to deliver malware into an enterprise while bypassing sophisticated defenses such as IPS, IDS, or NGFW (next-generation firewalls). Because AETs are designed to deliver malware without detection, this makes them “one of the most serious security threats facing enterprise network security today,” he adds. Dealing with single exploits, McKinley says, is relatively easy because security vendors can build fingerprint- and signature-based protection quickly. This is not the case with AETs.

Jim Kelton, managing principal at Altius IT ([www.altiusit.com](http://www.altiusit.com)), says threats vary with specific targets; high-profile enterprises and high-value targets, products, and services are most at risk simply because they enjoy a higher level of attention. And even though many organizations are often concerned about the IT implications of an attack, management should be equally concerned about potential damage to an organization’s reputation.

### Vulnerable Points

It’s important that enterprises understand what specific conditions can make them vulnerable to AETs. Any vulnerabilities that are identified should be quickly shored up so the possibility of an attack can be avoided.

Networks that use IDS alone or a poorly equipped IPS are at greater risk, says Stonesoft’s McKinley. In addition, he says, systems that rely on using an IPS to protect the network instead of going through the process of patching servers and workstations are also at risk, because AETs need vulnerable targets to be effective.

The classic problem of failing to keep system security up-to-date is another condition that can make an enterprise more vulnerable, says John Mariotti, president, CEO, and founder of The Enterprise Group ([www.shape-shifters.com](http://www.shape-shifters.com)). Add to this the explosion of mobile devices accessing corporate networks from just about anywhere and you have enterprises that can truly be vulnerable to attack using techniques such as AETs, he adds.

Part of the problem is that enterprises are frequently in reactionary mode when it comes to managing security incidents, says Altius IT’s Kelton. In order to make their organizations less vulnerable, administrators should conduct a top-down IT assessment to identify risk areas. Once the risk assessment is done, an IT risk treatment plan can be developed that reduces risk to acceptable levels.

### Protect The Enterprise

So, what are some concrete steps enterprises can take to protect themselves from the AET threat? Because AETs are such a new threat, the answer may not be straightforward or self-evident. The reality, says Stonesoft’s McKinley, is that today there are no security solutions in existence that can protect 100% against AETs. But,

### Key Points

- Cybercriminals may be getting away from developing new threats and turning their attention to the ways in which they can deliver existing malware most effectively.
- Equipment vendors are usually skeptical about the viability of newly identified threats, so it may be some time before these threats are addressed.
- Patching all systems regularly is another common-sense practice administrators can implement to reduce their vulnerabilities. Promoting good security habits in the installed user base is also essential.

enterprises can protect themselves by using software-based security solutions that are easier to update, he adds. Another key element is central management of network devices: managing all devices from a central location or console provides the ability to immediately respond when an AET attack is discovered, says McKinley.

IT risk assessments, says Kelton, can be used to prevent these types of risks. A risk assessment, he adds, is a process enterprises can use to identify assets, threats to assets, vulnerabilities, and potential impacts from those threats. The higher the impact, the larger the number of protective measures must be in place to defend against threats, including AETs. McKinley points out that vendors can be resistant to change when new discoveries occur, especially if they have to look into fixing vulnerabilities in their own product lines. Sourcefire’s Watchinski recommends that administrators ask security vendors about the steps they take to detect known evasion techniques and consult independent reports to determine how well specific vendors’ products defend against real-world evasion techniques.

### New Solutions?

AETs are such a new threat that networking equipment vendors are still trying to decide how to address the problem (if at all, in those cases when vendors are skeptical about the viability of AETs). Good security best practices—such as performing risk assessments and ensuring vital security measures are kept up-to-date—can go a long way toward protecting enterprises from AETs and any future threats that will surely arise in the future. ■

### AETs In Action

Amit Klein, CTO at Trusteer ([www.trusteer.com](http://www.trusteer.com)), says the ZeuS Trojan uses AETs (advanced evasion techniques) to create a Registry entry in the victim’s computer that then creates a machine-specific file. The Trojan then infects the browser in the system and captures information entered by the user into Web-based forms (such as usernames, passwords, etc.). This Trojan, says Klein, has been used to steal banking information, and is even used for corporate and government espionage.

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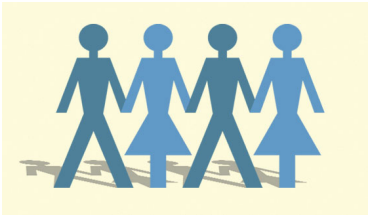
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## Enterprise Social Software Use On The Upswing, Gartner Reports

Although adoption of social software aimed at enterprises isn't escalating at the same pace of consumer-targeted applications such as Facebook and Twitter, revenue from the segment was expected to hit \$664.4 million last year, up 14.9% from 2009. That's according to a recent Gartner forecast that also projects enterprise social software revenue for this year will jump 15.7% from 2010 to \$769.2 million.

Tom Eid, Gartner vice president of research and author of the report "Convergence: Restructuring the Enterprise Social Software Market, Worldwide, 2010," says enterprise social software has been around since about 2004 with the advent of wiki technology.



"What has happened is people were tired of doing unnatural acts with email in terms of ways to share information or find people or carry on the ability to work together but work together in a physically distant relationship," he says. "Collectively, people were finding they needed to more or less augment a number of the tools they were most commonly using to communicate. Things like email and IM just weren't cutting it . . . people really needed a way to do better one-to-many, as well as many-to-many, styles or modalities of communication and collaboration."

Eid says some companies that experimented early on with such consumer applications as MySpace, Twitter, and Facebook realized, "Hey, this stuff is pretty good in terms of improving the timeliness of the interaction I can have, as well as the depth of the interactions we can have." For the most part, Eid says, "a group response is better than a whole series of selected individual responses." With enterprise social software, he explains, "you kind of get this overall power of the collective."

### Blogs, Communities & More

Gartner states enterprise social software applications are utilizing such technologies as blogs, communities, discussion forums, expertise location, feeds and syndication, social bookmarks, wikis, and integrated platforms/suites. Key adoption factors include cloud-based and SaaS delivery methods, with Gartner citing that of more than 80 vendors it tracks in the marketplace, about 50 use those delivery mechanisms.

Early enterprise social software adopters, Eid says, were aligned to consumer- or content-centric industries, such as financial services. Now, higher-profile and durable goods manufacturers (car companies, appliance makers, etc.), retailers, live sciences and pharmaceuticals, and high-tech companies "have done a good job of utilizing technologies." Presently, companies independent of size are making enterprise social software a core part of their business, Eid says, utilizing software in terms of product design and development, services design, vetting ideas across broader communities, expertise location, answer marketplaces, response mobilization, self-service, marketing, and the overall customer experience.

by Blaine Flamig

# CASE STUDY

## Phone System Flexibility

### Alteva Helps Concierge Company Improve Service

by Sue Hildreth

FOR MANY COMPANIES, the phone system is a critical link to customers and suppliers. It's more immediate than email and can be essential to maintaining the professional image of the firm. For Abigail Michaels, a nationwide concierge service to residential and commercial building tenants and owners, the efficiency of daily operations depends on having a quality phone system to answer and respond to tenant needs, including handling moving arrangements, cleaning services, rental car requests, restaurant reservations, and event catering.

So when the company began having problems with its first VoIP system a few years ago, it was a serious concern. The VoIP provider did not maintain the data lines, which were handled by the local phone company, so both would blame the other for the poor quality and dropped calls.

"We decided that the solution was to look for a phone company that would also maintain the data lines, so that the only person they had to blame was themselves," says Greg Flood, director of strategy and operations for Abigail Michaels.

#### Need For Caller ID & More

Abigail Michaels provides most of its services under the names of its client firms, which include building management companies. Employees answer the phone as if

they were calling. That really narrowed the field."

Abigail Michaels selected Alteva's Hosted VoIP Communications ([www.altevatel.com](http://www.altevatel.com)) to serve the concierge service's call centers in New Jersey, New York, and Pennsylvania. For hardware, the company selected Polycom HD IP650 handsets. The IP650 is a six-line VoIP phone that can be expanded with an add-on module as the business grows. The handset can be programmed as an office extension and used anywhere the employee is able to



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log on to the Internet, such as at home or in an alternate office—a potential solution should Abigail Michaels face an interruption of business in the main offices.

#### Why VoIP

Abigail Michaels has used VoIP for eight years and, despite initial problems with poor call quality, today remains a proponent of VoIP over traditional land-line systems. One reason is the flexibility of being able to reprogram handsets and quickly redirect incoming calls to other VoIP extensions. The system's auto attendant can be programmed to direct callers with differing needs to the appropriate

employees could be rerouted to other staffers or to a temporary office elsewhere. "If something were to happen, like fire or flood, I could just log on to the portal and have all the calls redirected," Flood says.

#### Benefits Of Hosting

Outsourcing to the cloud is an increasingly common option for enterprises of any size that prefer to offload the cost and effort of managing IT systems to a provider that specializes in it. Gartner has forecast growth in software as a service for all types of enterprise applications to reach \$10.7 billion this year, up from \$7.9 billion in 2009. Hosted IP PBX services reached \$3.4 billion last year, up \$15.3% from 2009, according to an estimate by ABI Research.

By outsourcing the phone system, Abigail Michaels saves itself time and expense involved in maintenance and management that on-premises systems require. Small hassles, such as malfunctioning phones, can be dealt with by sending phones back to Alteva for new ones. Larger problems such as call quality issues are dealt with by Alteva, which spares Abigail Michaels the cost of maintaining an IT staff to manage and troubleshoot onsite servers.

"We don't have to lay out capital to buy a server, and we don't have to replace it when it becomes out of date. In fact, we don't have to deal with any onsite servers anymore," he says. "Not only our phones, but [also] our database and email servers, are hosted. If there's a problem, they can fix it faster. If we had to update hardware all the time, we'd need a full-time IT person on staff."

Flood reports no problems with call quality or service with the new Alteva system, other than one bad handset the company had to exchange. The only drawback is that access to call data, including trends, number of calls per client, and volume per day, has been limited. Rather than getting it himself via a portal, Flood has to fill out a request for specific data. However, he is hoping that feature will be added in a future release. ■

“We decided that the solution was to look for a phone company that would also maintain the data lines, so that the only person they had to blame was themselves.”

-Abigail Michaels' Greg Flood

they are employees of the client company, not Abigail Michaels. Because of this, the company needed a system that could provide caller ID—not just the number of the caller but the name—so employees would know how to answer the phone. Flood dropped one promising contender because it only provided the caller's number.

Another requirement was the ability to provide outbound caller ID that could portray Abigail Michaels staff as being from whichever client firm it was representing at the time.

"We are contractually obligated not to ever appear as Abigail Michaels, so in the past we blocked the caller ID. But that led to people assuming it was a telemarketing call and not picking up the phone," Flood says. "I needed a company that was willing to give us multiple outbound caller IDs so that each person could select the ID depending on who

Abigail Michaels employee. It also turns the system on and off based on pre-programmed hours of operation.

New employees can be provisioned in just a minute or two via the administrative interface, and other tasks such as changing the hours of operation can be done in minutes. Flood says he can also add a new client to the system, add the phone numbers associated with the client, and route those to Abigail Michaels employees within a few hours. Employees can get their voice messages via phone and via email as .WAV attachments.

For staffers working outside the main call centers, such as in one of the buildings being served, calls can be directed to their locations and, if they don't answer the call, forwarded back to the call center or main office. Likewise, if one of the offices has a problem such as an electrical outage, the calls to those

### Alteva Hosted VoIP Communications

Provides enterprise phone connectivity over IP networks. Customers administer the system through an online portal and choose from several lines of handsets, including Cisco and Polycom. Alteva provides service in all 50 states and 14 countries.

"If there's a problem, they can fix it faster. If we had to update hardware all the time, we'd need a full-time IT person on staff," says Greg Flood, director of strategy and operations for Abigail Michaels.

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BUYING GUIDE



BUYING TIPS:  
Rackmount Servers

by Joanna Clay

**GET READY TO GEAR UP** for an investigation, because purchasing a rack-mount server requires some serious shopping strategy. Prior to your search, it's wise to assess the unique tiers of your business, so you know the requirements of different departments, including IT services, in-house end users, and mobile workers.

Jon Blaha, Dell sales broker for World Data Products ([www.wdpi.com](http://www.wdpi.com)), says there are several considerations server buyers must keep in mind, namely budgeting, knowing your infrastructure, and comparing brands. Most importantly, Blaha says, buyers need to look for the most bang for the buck.

**Build for your budget.** As a buyer, you need to ask yourself several questions regarding the number of employees you support, the type of software you need to run, how fast the server needs to process data, and how much drive space

you're really going to need. A consultant can also help you determine what is going to be best for your enterprise.

**Problem-solving.** What type of story problem describes your company? Do you already have a lot of data storage but need to repurpose it? Do you need to attach additional backup to your complete system? Or do you require a new level of maintenance and support that comes with a rackmount server upgrade? In essence, you need to decide which problem is worth solving. Calculate how much storage space your desktop systems occupy and then divide that number by the amount of time it took to accumulate that data. This is a helpful way to determine how much data you produce monthly.

**Infrastructure capabilities.** A smart buyer will do her research to determine which products will best fit within the infrastructure; metaphorically speaking, smart buyers observe the front of the puzzle box before assembling the puzzle. "For example, [if] a client is trying to do VMware (server virtualization), it's important that they find out what products will and have been good to support such a complex application," Blaha says.

**Brand before the buck.** Reliability will get you far in the rackmount server market, and there's no reason

Key Terms

- Configuration.** Refers to a server's specific setup (CPU, RAM, PCI-E cards, etc.).
- Integrated devices.** Servers come with many devices and features built-in, including SATA storage, IPMI, and network controllers.
- Regulatory and certification compliance.** Hardware must meet certain relevant laws and regulations, and rackmount servers are no exception. Certifications such as RoHS power compliance can come into play.
- Scalability.** Rackmount servers with scalable features allow for increasing amounts of data and will support additional resources. A scalable server typically has greater longevity.

not to be picky about your investment. Compare popular rackmount vendor brands and don't be afraid to scrutinize the quality. "Almost all brands out there offer a similar type of performance. However, what makes the biggest difference is dependability," Blaha says. "Think of it like buying a car. All [of them] do just about the same thing, but they all have different upkeep or repair needs. Always remember that no matter what type or brand you buy, it will always lose value and it will break down no matter what brand."

Buyers' Checklist

- ☒ **Consider project size.** Although any server buying project can seem overwhelming, it will help you to take stock of current inventory and decide which type of rackmount server setup will best suit your needs.
- ☒ **Research specifications.** Ultimately, a big purchase comes down to the dollars and cents. Know exactly what you're getting before you allocate a large portion of your budget to any vendor.
- ☒ **Compare reliable brands.** All brands represent something; your job is to choose a brand that will represent your company well. If you don't feel confident about a vendor's product, keep searching until you do.

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# Rackmount Servers

Product	Aberdeen Stirling 163G	Aberdeen Stirling 266G	Dell PowerEdge R910 4U Rack Server
			
Description	<p>The 1U Stirling 163G from Aberdeen uses a GPU in addition to a CPU to perform general-purpose scientific and engineering computing tasks. Stirling 163G servers are designed to boost performance at 1/10th the cost and 1/20th the power consumption of the latest quad-core CPUs.</p> <ul style="list-style-type: none"><li>• 1U form factor with support for two double-width GPU cards</li><li>• Configurable with Nvidia Tesla or Fermi GPUs</li><li>• Up to 12 CPU cores (dual six-core Intel Xeon 5600 processors)</li><li>• Up to 192GB DDR3 memory capacity</li><li>• Three 3.5-inch SATA drives with RAID 0, 1, 5, and 10 support</li><li>• Optimized for HPC and GPU supercomputing</li><li>• Five-year warranty</li></ul> <p><b>Best For:</b> High-end, high-density GPU applications requiring high arithmetic intensity.</p>	<p>The 2U dual-node Stirling 266G GPU server from Aberdeen provides endless computational scalability for high-bandwidth problems such as sequencing (virus scanning, genomics), visual computing problems such as graphics, and image processing. GPU computing uses a CPU and GPU together in a heterogeneous computing model, wherein the sequential part of the application runs on the CPU and the computationally intensive part runs on the GPU.</p> <ul style="list-style-type: none"><li>• 2U form factor with support for two double-width GPU cards</li><li>• Configurable with Nvidia Tesla or Fermi GPU cards</li><li>• Up to 12 CPU cores (dual six-core Intel Xeon 5600 processors)</li><li>• Up to 192GB DDR3 memory per node</li><li>• Six 3.5-inch SATA drives per node</li><li>• Optimized for HPC and GPU supercomputing</li><li>• Five-year warranty</li></ul> <p><b>Best For:</b> A range of graphical and computationally intensive applications, such as medical, energy, telecommunications, finance, science, and engineering.</p>	<p>The high-performance, 4-socket 4U PowerEdge R910 rackmount server from Dell boasts built-in reliability for CPU, memory, hardware, and hypervisor specifications. The Lifecycle Controller and embedded diagnostics enable advanced reliability, availability, and service capabilities. The PowerEdge R910 is designed as a building block to create a more efficient data center by way of simplifying standard operations and implementing processor security configuration.</p> <ul style="list-style-type: none"><li>• Hypervisor redundancy available via internal dual SD module</li><li>• Supports eight-core Intel Xeon 7500 series processors</li><li>• Hard drive options include 50GB 2.5-inch SATA SSDs or 146GB/300GB/600GB 2.5-inch SAS drives</li><li>• Rack optimization includes sliding Ready Rails for 4-post tracks, static Ready Rails for 2- and 4-post racks, and optional cable management arm support</li><li>• Management through Dell OpenManage and Unified Server Configurator</li><li>• Lifecycle Controller options are iDRAC6 Express, iDRAC6 Enterprise, and vFlash</li></ul> <p><b>Best For:</b> Establishing an efficient infrastructure to ensure reliability, security, and data center cost reduction.</p> <p><b>Price:</b> Starts at \$7,368</p>

Product	IBM Power 730 Express	Silicon Mechanics Storform iServ R518	Silicon Mechanics Rackform iServ R422
			
Description	<p>Able to consolidate Unix and x86 Linux workloads, the IBM Power 730 Express server optimizes server workloads and manages energy efficiently in order to help reduce data center costs. The server features IBM POWER7 processors, PowerVM technology, Intelligent Threads technology, and Active Memory Expansion. The intelligent energy management features ensure increased performance per watt and reduced operation frequency if required.</p> <ul style="list-style-type: none"><li>• EnergyScale Technology promotes operational growth even when energy is limited</li><li>• Light Path Diagnostics rapidly detect hardware problems</li><li>• POWER7 processor modules (two per system) include eight-core 3/3.7GHz, 12-core 3.7GHz, or 16-core 3.55GHz</li><li>• Supports AIX, IBM i, and Linux for power operating systems</li><li>• PowerVM virtualization balances workloads by sharing multiple resources</li></ul> <p><b>Best For:</b> Data centers running on multiple application and infrastructure workloads inside a virtual environment.</p> <p><b>Price:</b> Starts at \$15,230</p>	<p>The Storform iServ R518 from Silicon Mechanics is a 4U bare-metal storage server, meaning admins are free to install the storage management software of their choice. The R518 has front and rear drive deployment for high-density, high-capacity storage and is readily expandable using Silicon Mechanics Storform JBOD products. The R518 is powered by six-core Intel Xeon 5600 series CPUs and features Intel Turbo Boost and Hyper-Threading technologies, DDR3 memory, and up to 12MB cache.</p> <ul style="list-style-type: none"><li>• 4U storage server with front and rear drive deployment</li><li>• Two Intel Xeon 5600 series CPUs</li><li>• 12 DDR3 DIMM sockets</li><li>• Five PCI-E expansion slots</li><li>• 36 hot-swap SAS/SATA drive bays: 24 front, 12 rear</li><li>• Redundant 80 PLUS Gold certified power supply</li></ul> <p><b>Best For:</b> Affordable high-density, high-capacity storage.</p> <p><b>Price:</b> Starts at \$5,076</p>	<p>The Rackform iServ R422 from Silicon Mechanics is an enterprise-level 2U rackmount server. The R422 is a powerhouse, with capacity for eight-core Intel Xeon 7500 series CPUs and 32 DDR3 DIMMs. In addition to Intel Turbo Boost and Hyper-Threading technologies, the R422 includes such high-end features as recoverable machine check architecture and integrated Intel Scalable Memory Interconnect and Scalable Memory Buffers for high-speed links and high-capacity bandwidth.</p> <ul style="list-style-type: none"><li>• 2U 4-socket rackmount server</li><li>• Four Intel Xeon 7500 series CPUs</li><li>• 32 DDR3 DIMM sockets</li><li>• Up to 24MB cache</li><li>• Four PCI-E expansion slots</li><li>• Six hot-swap SAS/SATA drive bays</li></ul> <p><b>Best For:</b> Virtualization and deployments requiring multi-processor power and high memory counts.</p> <p><b>Price:</b> Starts at \$9,489</p>



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Joanna Clay

## HP ProLiant DL580 G7



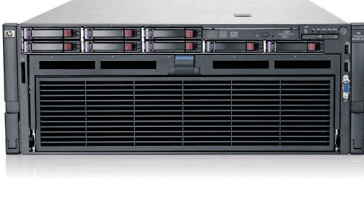
The HP ProLiant DL580 G7 is a scale-up server designed with reliability to support the most demanding, data-intensive x86 workloads. Based on the latest Intel Xeon 7500 Series processors, the new systems architecture accelerates virtualization and eliminates performance bottlenecks. HP ProLiant servers are the building blocks of an HP Converged Infrastructure—a blueprint for the data center of the future.

- Increases administrator productivity with iLO 3 (Integrated Lights-Out) Advanced remote console management
- Improves data center utilization, reclaims over-provisioned energy, and triples data center capacity with HP Insight Control with Dynamic Power Capping technology
- Eliminates overprovisioning of power capacity with HP Intelligent Power Discovery

**Best For:** Business-critical data center deployments and virtualization environments.

**Price:** Starts at \$9,249

## HP ProLiant DL585 G7



The HP ProLiant DL585 G7 server delivers industry-leading efficiencies to reduce costs in both capital and operating budgets. Based on the latest AMD Opteron 6100 Series processors, this server supports up to 512GB of memory to maximize performance. HP ProLiant servers are the building blocks of an HP Converged Infrastructure—a blueprint for the data center of the future.

- Increases administrator productivity with iLO 3 (Integrated Lights-Out) Advanced remote console management
- Improves data center utilization, reclaims over-provisioned energy, and triples data center capacity with HP Insight Control with Dynamic Power Capping technology
- Eliminates overprovisioning of power capacity with HP Intelligent Power Discovery

**Best For:** Server virtualization, server consolidation, multitiered enterprise applications, and corporate infrastructure applications.

**Price:** Starts at \$8,579

## IBM Power 710 Express



The IBM Power 710 Express is a high-performance application server that offers support for up to eight POWER7 cores within a dense infrastructure. This model features the POWER7 Intelligent Threads technology and is able to switch between one and four execution threads. Additionally, IBM's Active Memory Expansion makes more usable memory available. PowerVM technology is available in four configurations, including POWER Hypervisor, PowerVM Express Edition, PowerVM Standard Edition, and PowerVM Enterprise Edition.

- Intelligent energy management features can conserve power and promote efficiency
- RAS features maintain business operations to sustain a growing work environment
- Includes up to six SSDs or SAS drives, up to 1.8TB disk capacity, and four low-profile PCI adapter slots
- EnergyScale technology includes power trending, power saving, power capping, and thermal measurement

**Best For:** Data centers that need the support for fast transactions as well as Unix/AIX, IBM i, and Linux deployments.

**Price:** Starts at \$5,852

## Silicon Mechanics Rackform nServ A109



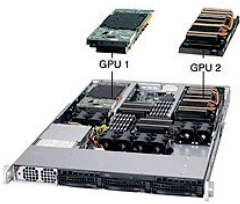
The just-released Rackform nServ A109 from Silicon Mechanics brings greater power and efficiency to the affordable entry-level server. With a four- or six-core AMD Opteron 4100 series processor, admins have access to HyperTransport technology, two channels of DDR3 memory operating at up to 1,333MHz, 6MB of L3 cache, and advanced power management features such as Cool Speed and Enhanced APML (Advanced Platform Management Link) with Precision Thermal Monitor.

- 1U single-socket rackmount server
- One AMD Opteron 4100 series processor
- Four DDR3 DIMM Sockets
- 6MB L3 cache
- One PCI-E 2.0 expansion slot
- Two fixed SATA drives

**Best For:** Entry-level workloads relying on efficient power and the Intelligent Platform Management Interface with KVM over LAN integration.

**Price:** Starts at \$987

## Supermicro SuperServer 6016GT-TF-FM205



The 1U SuperServer 6016GT-TF-FM205 rackmount server from Supermicro features an Intel Xeon 5600/5500 processor and 192GB of DDR3 1333/1066/800MHz ECC Registered DIMM. The SuperServer 6016GT-TF-FM205 also features the Super X8DTG-DF motherboard (with dual 1,366-pin LGA sockets).

- Supports RAID 0, 1, 5, and 10
- Comes integrated with two Nvidia Fermi M2050 GPU cards
- Intelligent Platform Management Interface version 2.0 with support for virtual media over LAN and KVM over LAN
- Intel 82576 dual-port Gigabit Ethernet controller with support for 10BASE-T, 100BASE-TX, 1000BASE-T, and RJ-45 output
- 80 PLUS Gold Certified power supply

**Best For:** Environments that would benefit from high compute density and uniform large-scale deployment-based rackmount solutions.

**Contact:** (408) 503-8000 | [www.supermicro.com](http://www.supermicro.com)

## Supermicro SuperServer 6026TT-GIBQRF



The SuperServer 6026TT-GIBQRF from Supermicro has a 2U rackmount configuration that features integrated IPMI 2.0 with KVM and dedicated LAN. This model includes computing nodes with onboard QDR InfiniBand for 40Gbps high-bandwidth connectivity. It features additional support for up to 12 hot-swap 3.5-inch SAS/SATA drives for increased I/O provision.

- 1,400W high-efficiency power supply with 80 PLUS Gold Certification
- Dual 1,366-pin LGA sockets with support for up to two Intel 64-bit Xeon processors
- Supports memory mirroring plus single- and double-bit error detection and correction
- Supports up to two double-width GPU cards via native PCI-E 2.0 x16 slots
- Dual Intel 82574L Gigabit Ethernet controllers with 10BASE-T, 100BASE-TX, and 1000BASE-T output

**Best For:** Environments requiring hot-swap server capabilities for power savings and space sharing.

**Contact:** (408) 503-8000 | [www.supermicro.com](http://www.supermicro.com)



## Android Closing The Gap With The iPhone

More Americans own smartphones running Apple's iOS than any other operating system; however, more people are buying smartphones that run Google's Android OS, according to figures provided by the Nielsen Company.

The iPhone has enjoyed stable consumer sales levels in the United States for the past six months. Nearly 27% of U.S. smartphone buyers chose Apple's popular handset, which has commanded 28% or more of the U.S. consumer market since the middle of 2010. The Android OS' new sales percentage catapulted from 27.5% of U.S. smartphone consumer purchases in June to 40.8% in November. Android nearly matched the BlackBerry's portion of the consumer market with a 25.8% piece of the pie, up from 15% in June.

Indeed, the popularity of smartphones powered by RIM's BlackBerry OS has suffered a downward trajectory. After a brief period of upheaval last summer—the BlackBerry OS share of sales to U.S. consumers plummeted from 35% to 26.2% in a single month—RIM has slid in the rankings to just 19.2% of new smartphone sales as of November of last year. The BlackBerry OS market share among American consumers dwindled from 33.9% to 26.1% during the same period.

### A Number Of Factors

Nielsen cautions that margin of error might make the OS share race "too close to call." The firm also points out that 45% of new phone buyers in the United States picked a smartphone over a less capable feature phone in November, up from 34% in June.

"A big reason for the growth of the Android OS is customer satisfaction," says Andy Golub, associate director of research at ChangeWave Research. "Google's Android OS ranks second to Apple's iOS in our latest December ChangeWave Smartphone survey."

In said survey, 58% of Android customers reported that they considered themselves to be "very satisfied" with their purchases. Among buyers of smartphones with the Apple iOS on board, 72% described themselves as feeling very satisfied.

The figures for consumer smartphone purchasing habits are somewhat mirrored by the trends in the enterprise, according to Golub. "The Android OS has also been showing strong momentum in ChangeWave's Corporate Buying surveys," Golub says. "In particular, we've witnessed a major advance for Android in the corporate market for four consecutive quarterly surveys in terms of current usage."

by Marty Sems



## SIX QUICK TIPS

# Choosing A Colocation Provider

## Steps To Follow That Will Pay Handsome Dividends

by Bruce Gain

SAVING MILLIONS OF DOLLARS in cooling, electricity, and construction costs by using a colocation facility to house servers is an attractive proposition. The downside, of course, is that placing your enterprise's data in the hands of a third party involves an element of risk. While some of the potential perils are obvious, others are not as apparent, such as determining whether a provider's disaster recovery processes, business plans, and, of course, security practices are reliable enough to meet your enterprise's needs.

### Check The Continuity Plans

A service provider may offer exactly what you want until the day comes when there is a fire, flood, or another disaster that destroys its facility. It is thus critical to make sure that continuity plans are scrutinized on a regular basis, says Clive Longbottom, service director for business process facilitation at Quocirca ([www.quocirca.com](http://www.quocirca.com)). "[As just one example], the best co-los will actually turn off the electricity in parts of the facility at least once a month to ensure that UPS and generators operate as expected," Longbottom says. "This can't be done with things like heat sensors and fire suppression systems, though, so best to make sure that what is there meets best practices with [early warning smoke detection] systems and the like."

### Control Access To Your Servers

A major security concern is ensuring that access to your servers is strictly controlled at any colocation facility your enterprise uses.

"Check for all access policies—only named people should be allowed anywhere near your equipment," Longbottom says. "If it needs a specialist skill, that skill and person responsible should be run past you before the person is allowed in the cage/room—and you should have the choice of putting one of your trusted people in at the same time."

Access control should extend all the way to the colocation provider's building. For example, it is not viable for a

provider to share a building with another company, says Julien Ardisson, COO for Strato AG ([www.strato.com](http://www.strato.com)), a Web hosting service provider. Even if the other company that uses the same building is a legitimate firm, it becomes that much more difficult to control who gets inside. "Regardless of other [controlled access points], sharing a facility creates another way someone could possibly get in the data center room and leave with your data," Ardisson says. "You must have full control of the entire building."

Of course, making sure that only one company operates the building is one step when it comes to maintaining physical security at a particular provider's site. Security cameras, physical alarms, and locked entrances to the server room inside the building should be mandatory. Biometric or other smart ID cards should also be required for entry to the data center at a colocation facility.

### Consider Your Long-Term Needs

Business models and enterprises can change radically during the course of a few years. While it is very difficult to gauge your enterprise's exact needs in the long term, different best-case-scenario growth needs should be assessed. For example, if your enterprise will need several dozen new server racks in a few years, will the provider be able to handle the cooling, power, maintenance, security, and other needs of the additional serverware?

"Customers need to look at the service stack to meet changing and evolving business needs—keeping in mind market demands and pressures," says Mara McMahon, director of product management, Data Center Services, Tata Communications ([www.tatacommunications.com](http://www.tatacommunications.com)). "With this evolution, facility and infrastructure business requirements change. When choosing a colocation provider, it is important and even vital to know that they will have the ability to meet evolving needs."

### Watch The Location

The location of the provider is critical if your enterprise uses the facility to house mission-critical servers that run applications that users must access from

### Best Tip:

## Concentrate On What Matters Most

External appearances do not mean much when selecting a reliable colocation provider. Remember it's your company's data and security at stake, so be sure to look beyond sleek building designs. It's typically not appealing on the outside, but Clive Longbottom, service director for business process facilitation at Quocirca ([www.quocirca.com](http://www.quocirca.com)), says, "A concrete or metal-walled monstrosity will tend to be more environmentally easy to manage and will provide much higher levels of security."

### Most Practical Tip:

## Check The Certifications

Your IT department may have a very talented security specialist on staff, but there is only so much due diligence you can do as a potential customer. Since a colocation provider's security practices and plans obviously represent a critical concern when deciding which vendor to choose, a potential provider's audit history and certifications, such as ISO 27001, can help shed an objective light on its security practices. "Sometimes it is hard to get a full measure of what is in place to protect their environment," says Joe Malec, the St. Louis chapter president of ISSA (Information Systems Security Association; [www.issa.org](http://www.issa.org)). "That is why it is important to check a colocation facility's third-party audits."

ISO 27001 is the "gold standard," Malec says, while adding that other viable certifications include SAS 70 Type II in the United States (which is being replaced this year with the ISAE 3402 and SSAE No. 16 certifications) and CICA 5970 in Canada.

the enterprise in real time. For example, even less than a second of lag time for a Web-based application to run from a server located on a different continent might be too long for certain applications. It is also important that the colocation facility is not too far removed from major Internet backbones if latency over the Internet is an issue.

A provider that is located in an area subject to flooding, earthquakes, hurricanes, or other potential hazards can represent additional risks, as well. But even if a colocation provider is not based in a high-risk area, it is a good idea to make sure that the server data and applications are mirrored at a backup site in another location, especially if mission-critical data is involved. Joe Malec, the St. Louis chapter president of ISSA (Information Systems Security Association; [www.issa.org](http://www.issa.org)), says a distance between the main and backup site should be at least 300 miles.

## BONUS TIPS

■ **Look at the colocator's business plan.** When choosing a colocation provider, investigate the company's growth plans and whether the company will likely overstretch itself or stagnate, says Clive Longbottom, service director for business process facilitation at Quocirca ([www.quocirca.com](http://www.quocirca.com)). Questions to ask include: "Are the shareholders in for the long term,

or are they more focused on the short-term, 12-week public company horizon, and, if private, is an IPO on the cards, [and] what would this mean for you going forward?" Longbottom says.

■ **Find a cost-effective provider.** A small to medium-sized enterprise might only have Tier 1 requirements and would not need to pay the

premium price for a provider with a state-of-the-art facility that can handle Tier 3 data center needs. "You must determine whether the potential colocation provider is cost effective and whether it really meets your needs," says Joe Malec, the St. Louis chapter president of ISSA (Information Systems Security Association; [www.issa.org](http://www.issa.org)).



# What People Are Saying About Windows 8

Analysts Predict Upcoming OS Will Be For Tablets

by Jean Thilmany

• • •

ALTHOUGH many enterprises are just starting to implement Windows 7, and others are only thinking about installing it, there’s already talk of Windows 8. Microsoft demonstrated a preliminary version of the operating system at the 2011 International Consumer Electronics Show, but that demonstration did little to curtail speculation about the future OS.

## Key Points

- Many analysts expect Windows 8 will be targeted at tablet devices.
- Experts are predicting that Microsoft’s next Windows OS could be released later this year to as far off as 2013.
- Enterprises not already running Windows 7 need not hold out for Win8 and should go ahead with installing Win7.

With no official release date in sight, some experts predict Win8 will be available near the end of 2011, while others say it will arrive in 2012 or even 2013, based on the amount of work the previewed system seems to need, says Michael Cherry, lead analyst for operating systems at Directions On Microsoft.

Cherry says that the machines Microsoft used to demonstrate the upcoming OS at CES were not even enclosed in boxes. With that in mind, he says, “It will take about two years’ worth of work to finish up what [it needs] to do, so we’ll likely see it in the 2013 time frame.”

### Runs On A Tablet

Microsoft also made its biggest announcement regarding Win8 earlier this month: The system will support SoC (system-on-a-chip) architectures on x86 and ARM.

It is a big deal if Win8 does support SoC and ARM because the ARM architecture supports tablet devices, and this could mean the software giant is contemplating a move to tablet-style devices. Currently, ARMs are the primary architecture used for tablets, says Marcel Brown, president of the technology consultancy Marcel Brown Technology Services.

“The question becomes: Is Microsoft targeting Windows 8 toward tablet computers

and is it moving up Windows 8 because it felt pressure to do so because of the iPad?” Brown asks.

The move to tablet devices seems likely, he adds, in light of the fact that Win7 came out only two years ago. Customers who have just upgraded to Win7 are not likely to undertake another costly upgrade so quickly, Brown says.

Cherry believes Win8 is being released to run on portable devices. “So with [Win8], we may see a bunch of intriguing new devices,” he says. “Microsoft right now makes the case that Win7 runs on a tablet and that you can buy tablets from Dell and HP, but really, those look more like a laptop than an iPad.”

Because Win8 supports the ARM architecture, Cherry says portable devices running the OS could be much thinner and have a longer battery life (18 hours vs. the present eight or nine hours) than those running Win7.

But don’t expect long lines for these devices the moment they appear. Cherry says the Win8 devices will “still be the types of things you’ll adopt based on price and how willing you are to be a pioneer. He explains that there are a lot of people who are using the first generation of a certain technology, and they are as happy as can be with it, but others like to wait until any kind of hidden surprises have been uncovered.

One plus for those earlier adopters of these speculative devices: They will have the capability of running the same applications on a tablet and a personal computer.

“The iPad is an interesting device, but it runs apps specially made for the iPad,” Cherry says. “If Win8 can be run on that same type of device, the Windows apps may have to be changed or modified, but they’ll have the full Windows operating system to work with.”

### When To Upgrade

Over and above any speculation on tablet devices, should enterprises that haven’t yet upgraded to Win7 hold out for Win8 instead? Or, should enterprises that only just made the move to Win7 already be looking to upgrade?

Brown says not to worry about Win8 yet. “I’m always of the opinion you can’t make decisions based on rumors,” he says. “People are still working with problems with Win7 migration. . . . I’d plan on Win7 for the next couple of years, especially if the rumors are true

that Win8 will be more focused on tablet technology.”

Those enterprises not already using Win7 should upgrade without waiting for Win8, Cherry adds.

“If you’re running [WinXP], but the computer that you own is capable of running [Win7], you should be running [Win7] because it’s a very good piece of work,” he says. “The only reason you’d not run Win7 is because you don’t have hardware capable

of running it. But if you think to yourself ‘I can last two years and then I’ll go to [Win8],’ that isn’t such a good idea,” he adds.

Win8 is expected to include significant changes; therefore, Cherry cautions against early adoption. Let Microsoft work out the kinks, he says.

“Win7 is good and still has a five- to seven-year time frame ahead of it,” he adds. “So Win8 becomes the one you want to play wait-and-see with.”

“Win7 is good and still has a five-to-seven-year time frame ahead of it. So Win8 becomes the one you want to play wait-and-see with.”

- Directions On Microsoft's Michael Cherry

## GIADA MI-H67

NEW PRODUCT

by Rod Scher

### New Motherboard Offers Quiet, Space-Saving Power



**Giada MI-H67**  
A Mini-ITX motherboard that supports multiple CPUs, including the new Intel Socket 1155 Sandy Bridge Core i7.

GIADA’S MI-H67 is a tiny but surprisingly powerful motherboard that’s perfect for a variety of office applications and packed with a number of advanced features. If you’re thinking about building a super-quiet multimedia or theater system for office or on-the-road training and presentations, or if you’re looking for ways to equip an office with desktop machines without creating a roomful of noisy, humming fans, the MI-H67 is worth a look—and a listen.

The MI-H67 supports multiple CPUs, including Intel Socket 1155 Sandy Bridge Core i7, Core i5, and Core i3 processors, and it includes the Intel H76 Express chipset. It can handle two DDR3 1333MHz memory cards, for a maximum of 8GB, and offers three expansion slots (two Mini-PCI-E and one PCI-E x16). The MI-H67 supports multiple GPUs, including ATI CrossFireX, and provides a total of four SATA ports—two SATA 3.0 and two SATA 2.0.

A RealTek Gigabit LAN controller provides Ethernet connectivity, and the motherboard also features two back-panel Wi-Fi antenna apertures. The MI-H67 provides 12 USB ports, including six USB 2.0 via motherboard headers

and six more on the rear panel; eight of them are USB 2.0 and four are USB 3.0.

Additional back-panel I/O ports include an RJ-45 LAN port, HDMI and DVI output ports, and an audio I/O interface that includes an eight-channel hi-def audio codec and S/PDIF output.

The MI-H67 is not merely powerful and quiet, it’s also small, so it lends itself to building computers that take up little desk space. Or even none at all: It’s possible to use the MI-H67 in a VESA-compliant case and attach the entire system to the back of any VESA-compliant monitor.

## Not Made For Portability

Experts and analysts do seem to agree that Windows 7 isn’t a good OS for tablets. “Maybe Microsoft is moving up Windows 8 because [it] know[s] Win7 just isn’t good with a tablet,” says Marcel Brown, president of the technology consultancy Marcel Brown Technology Services.

Brown also says some people hope that the software giant doesn’t rush Win8 to market just to capitalize on its tablet compatibility. “Some people think Win7 was kind of thrown out there ahead of schedule,” he says. “I don’t think Microsoft would want to do that again.”





### ■ iPad Creates Stiff Competition For Rival Tablet Makers

Companies entering into the tablet PC market, such as RIM and HP, will have difficulty competing with the iPad, says Ted Schadler, an analyst at Forrester. Schadler says that these newer tablets are being directed solely at businesses, rather than both business and consumer buyers, and that may be to their detriment because people can simply bring their iPads to work for personal and professional use. Tablet makers are also at a disadvantage, Schadler says, because the iPad has already become a household name and newer tablets will need time to catch up.



### ■ Internet Surpasses TV As Main News Source

The Internet continues to gain a greater following among those seeking the news, and Generation Y is its greatest adherent, according to new information from the Pew Research Center. The percentage of 18- to 29-year-olds using the Internet as their primary news source increased from 34 in 2007 to 65 in 2010. Those claiming television news as their first choice dropped from 68% to 52% between those years, marking the first time the Internet has supplanted television as primary news source. Of all age groups surveyed, preference for the Internet has gone from 17% three years ago to 41% now, with those opting for television coverage dropping from 74% to 66%.

### ■ 1,000-Core Processor Under Development

Researchers at the University of Glasgow in Scotland and University of Massachusetts in Lowell have managed to cram 1,000 cores onto a single processor. To test their FPGA (Field Programmable Gate Array) processor, the researchers ran an MPEG video conversion algorithm, similar to that used on videos uploaded to YouTube, and realized a 5GBps data rate, which is about 20 times faster than a PC that uses the fastest commercially-available processor. Although the custom processor delivers extreme performance for some tasks and low energy consumption, because of the processor's ability to complete tasks so quickly, software remains the bottleneck for multicore processors.

### ■ \$1 Million In Equipment Stolen From EMC

A former EMC testing engineer confessed to stealing about \$1 million worth of equipment from his former employer's North Carolina plant. Kevin Kelly stole \$930,000 worth of EMC equipment over the course of nine years. The equipment was taken from the facility piece by piece in a duffel bag as he left work. Kelly later sold the majority of the stolen equipment to BL Trading, a reseller located in Hanover, Mass.; that company has also been charged and is awaiting trial. All equipment was sold under the name of an unknowing co-worker. Kelly pled guilty to fraud, identity theft, and transport of stolen property, and he could face up to 32 years in prison.

# A New Role After The Great Recession

## Enterprises Increasingly Look To IT For New Business Direction

by Bruce Gain

• • •

THINGS ARE DIFFERENT following the “Great Recession.” Instead of being looked upon as cost centers, IT departments are increasingly used to further enterprises’ business models and processes. A company that wants to sell more widgets or even enter new business calls on the IT department to determine ways to leverage technology to do that.

“CEOs are looking for ways to change how they do business,” says Rob Koplowitz, an analyst for Forrester Research. “The IT department is now asked how to figure out the technology-enabler portion of this.”

### An Emerging Trend

The IT department’s role began to shift from a maintenance and support function to that of a business enabler when the U.S. economy was still in the throes of the recession. Although businesses were certainly cutting back on their overall spending, their priorities began to shift, Koplowitz says. Instead of slashing funding for projects that did not demonstrate an immediate ROI, for example, “the exact opposite began to happen,” he says.

“We were seeing a lot of high numbers around investments in collaboration strategy, collaboration tools, and emerging social tools,” Koplowitz says. “So why were firms cutting back on everything but were pushing forward with the collaboration agenda? Companies began to work differently and realized that they needed to be more innovative.”

According to Koplowitz, IT’s new role since the recession is increasingly tied to both product and business innovation. “How am I interacting with processes today, and how can I do it differently with new technologies? Much of it comes down to innovation of processes, innovation of how I address my work on a daily basis, and innovation of how my organization is structured. A lot of it is that classic ‘I want to build a better product than my competitor,’” he says.

### It’s The Technology

A central part of IT’s new role involves a collective push for the IT department to use new technologies to grow business plans and processes much more than they did in the past. This has generated “excitement in the IT department with the changing of the role,” says Koplowitz. “An IT staffer might say ‘30 years ago, I came to this company, and we were doing stuff that was going to change the world. We were creating IT systems that were so different that they were differentiating our company,’” he says. “But

now, all of the sudden, the IT department is brought into these conversations where the CIO and CEO are saying ‘we are going to use technology to change how we do business.’”

There are thus new opportunities to be had now in the IT sector. Instead of just making sure that servers remain up and running, managing backups and storage, and the usual nuts-and-bolts tasks of data center management, IT admins increasingly have more business-related responsibilities. They often have the green light to make major investments in technologies that will create new business opportunities. Many are no longer in the business of looking at long spreadsheets to determine how they are going to upgrade some system. Instead, they are talking to the business to determine how to leverage technology, Koplowitz says.

### Still Not A Sure Thing

In many cases, the CEO and CTO are aggressively pushing to expand the IT department’s role in the enterprise, but not

“Businesses that continue to invest in IT know that you have to make the investment now to reap the benefits later.”

-Shands HealthCare’s Brad Kowal

every department adopts the strategy to the same degree as management might want. “Everybody is talking about IT’s new strategic vision, but are [all departments] really being made to jump on-board?” asks Brad Kowal, assistant data center director for Shands HealthCare in Florida. “Departments might be asked to adopt a new system, but what if the dollars aren’t there to do that?”

Enterprises that are able to implement new technologies on an organization-wide basis in order to directly boost business plans also tend to invest for long-term results, as opposed to seeking quick fixes, Kowal says. “When implementing new technologies, it is a very costly process and involves multi-month as well as multi-year projects,” he says. “Businesses that continue to invest in IT know that you have to make the investment now to reap the benefits later.”

### The Right Technology Choice

When helping business units boost their bottom lines or even enter new markets, the role of IT managers also increasingly involves selecting the right technology to

### Key Points

- The IT department's role increasingly involves creating new and unique business models and processes.
- IT budgets earmarked for new business projects began to increase during the recession.
- The role technology plays and how the IT department implements technology are key to business success.

implement. It is often easy to find new and exciting hardware and software solutions that do amazing things, but the real question to answer is whether they really have the potential to meet business goals.

“IT needs to move from looking at technology as an end to itself and instead gain a general understanding of where cloud computing, outsourcing, virtualization, etc., fit best,” says Clive Longbottom, service director for business process facilitation at Quocirca ([www.quocirca.com](http://www.quocirca.com)). “[This process] also involves working to ensure

that the IT required is in the right place at the right time and responds to the business’ needs in the right manner at the right cost.”

### New & Old Roles

Enterprises, still cautious about what the future might bring, are still often hesitant to increase their overall IT spending. As part of a trend that became more common during the recession, IT staffers are still increasingly asked to do more with less. Many have new roles as “technology enablers” to grow specific business plans but are continuing to do their previous jobs, as well.

An IT manager, for example, might be in charge of installing a new software application on which the enterprise will base a new service to offer customers. However, the project will likely be added to the IT admin’s existing workload without involving a new hire, says John Matzek, CEO of Logic IT Consulting ([www.logicitc.com](http://www.logicitc.com)). “Enterprises will typically not hire as many people as they did before the recession, but now [staffers] are expected to do multiple roles,” Matzek says.

Overall, budgets are not necessarily keeping up with new roles that many in IT are expected to fulfill, says Stephen Johnson, worldwide segment marketing manager for HP StorageWorks ([www.hp.com](http://www.hp.com)). “The role IT plays is increasingly in a strategic division where they can help the business to determine where they ought to be moving,” Johnson says. “So they are really looking for solutions that can do that, which has been an ongoing challenge since the recession.” ■

## The Maintenance Role Will Remain

Suppose you are the only person in the enterprise who knows how to solve SQL Server glitches or your specialty is maintaining SANs. Despite much attention paid to aligning business needs to IT, your skills will still always be needed. The emerging role of the IT admin as a business enabler does not mean that traditional IT administration roles are about to disappear. “Somebody still has to keep that email server running and many are happy doing that,” says Rob Koplowitz, an analyst for Forrester Research.



OF SPECIAL INTEREST TO GOVERNMENT DATA CENTERS

# Government Use Of Cloud Computing

How New Regulations Will Affect Certain Data Centers

by Brian Hodge

**FEDRAMP** (Federal Risk and Authorization Management Program; [www.fedramp.gov](http://www.fedramp.gov)) is the government’s plan to unify security requirements as federal agencies migrate from internal data centers to cloud computing hosts. In a nutshell, here’s what it addresses and some of its key implications.

### What Is FedRAMP?

Although it was still being tweaked as we went to press—an extended comment period ended January 17—the core FedRAMP document is divided into three chapters, each with its own primary goals:

1. Creating a standardized set of security requirements that cloud vendors must meet to host government agencies.
2. Establishing continuous monitoring for compliance and effectiveness.
3. Streamlining the vendor assessment and authorization process so one certification applies government-wide instead of authorizations being handled on an agency-by-agency basis.

The latter outcome should have the greatest business impact. In the past, a certification granted to a vendor by one government agency had no relevance if that

### Key Points

- FedRAMP’s chief goal is to streamline government adoption of cloud computing by unifying baseline security requirements and simplifying vendor certification.
- Its guidelines are based on familiar NIST low and moderate impact baselines and frameworks.
- Under FedRAMP, security is still a shared responsibility, with demands on host and tenant alike.

“The government has had a very hard time hiring and retaining qualified information security professionals,” Martin says. “So while businesses might be able to evaluate cloud offerings from the security point of view, it’s harder for the government to do it.”

In essence, then, a codified set of requirements helps automate the assessment and authorization process, and their basis is nothing new. The security guidelines are based on NIST’s (National Institute of Standards and Technology) SP800-53 rev3 low and moderate impact baselines; the assessment and authorization

### Criticisms & Rebuttals

As it’s currently drafted, FedRAMP has drawn plenty of critiques: that it doesn’t sufficiently address application security, it doesn’t address security controls for hypervisor vulnerabilities, and so on.

“The current FedRAMP guidelines seem fairly basic and generic and could really be applied to almost any IT project,” says Martin. “But it’s hard to define more detailed requirements in a useful way, particularly with government standards. The length of time needed to create a draft of a standard and get it through the review process that the government uses usually means that such standards can’t keep up with rapidly changing technology.”

Cloud computing is a prime example of that very thing. The challenge, according to Hoff, comes from people expecting to apply existing architectural and operational models while moving systems off their own hardware and into a virtualized environment with a huge new variable: multitenancy.

“Security is still very much a shared responsibility,” Hoff says, with things required of the provider and the tenant alike. “I still have to harden my operating systems, I still have to write and harden my applications, I still have to protect and encrypt my data. None of that goes



### Microsoft’s Head Of Server Biz Stepping Down

Bob Muglia, a 23-year Microsoft veteran and current president of Microsoft’s Server and Tools Business, will leave the company this summer. Microsoft CEO Steve Ballmer told employees in an email that Muglia will continue to head the division until Ballmer names a new leader. Ballmer wrote that the move occurred after he and Muglia talked “about the overall business and what is needed to accelerate our growth. In this context, I have decided that now is the time to put new leadership in place for STB. This is simply recognition that all businesses go through cycles and need new and different talent to manage through those cycles.” Muglia led Microsoft’s Developer, Office, and Mobile Devices divisions, Ballmer said, and was key to Windows NT and Online Services businesses, as well. Under Muglia’s watch, Microsoft launched its Azure platform.

### Poll Shows Support For Open Data Initiative

According to the “Open Government Data Benchmark Study” from Socrata and several partners, 67.9% of citizens and 92.6% of government employees support putting public data online. Those polled also indicate, by a 3-to-1 margin, that they would vote for a politician who supported open government initiatives. About half of all surveyed government agencies already publish data in one way or another, and more have plans to do so. The poll also found that 63% of citizens surveyed prefer to look for and view data online, while only 16% prefer to download and analyze it.

### AMD CEO Dirk Meyer Steps Down

In a move that surprised many within the industry, AMD CEO Dirk Meyer resigned his position effective immediately in what AMD characterized as a “mutual agreement” with its board of directors. The company tabbed Thomas Seifert, senior VP and CFO, as interim CEO and has formed a CEO search committee that’s led by Bruce Claflin, chairman of the board of directors. AMD announced that Seifert has asked not to be considered a candidate as permanent CEO. In a statement, AMD noted that Meyer was instrumental in leading the company through its launch of Global Foundries, the successful settlement of litigation with Intel, and shipment of Fusion APUs. “The board believes we have the opportunity to create increased shareholder value over time,” Claflin says, and “we believe a change in leadership at this time will accelerate the company’s ability to accomplish these objectives.”

“The government has had a very hard time hiring and retaining qualified information security professionals. So while businesses might be able to evaluate cloud offerings from the security point of view, it’s harder for the government to do it.”

- Voltage Security’s Luther Martin

same vendor sought certification from a different agency. Under FedRAMP, certification for one agency means certification for all others, a policy sometimes characterized as “authorize once, use often.”

### Digging Deeper

Ostensibly, FedRAMP’s chief aim is to streamline government’s move to the cloud by eliminating redundancies.

“Multiple agencies going into a cloud service provider and essentially executing the same sets of queries, requirements, contracts, [and] service-level negotiations independently . . . it’s a complete waste of time and money and doesn’t get you there any faster,” says Chris Hoff, director of cloud and virtualization solutions for Cisco Systems ([www.cisco.com](http://www.cisco.com)).

There are likely publicly unstated goals, as well. Luther Martin, chief security architect at Voltage Security ([www.voltage.com](http://www.voltage.com)), believes FedRAMP will also be a tool for government to leverage its buying power to get good deals from cloud providers and that it also appears to be the solution to a longstanding personnel problem.

approach on NIST’s SP 800-37 rev1 risk management framework.

Agencies whose resources fall under a high-impact designation can, of course, have security demands that exceed FedRAMP’s baseline. In such cases, it’s the agency’s responsibility to close the gap.

In fact, says Cisco’s Hoff, “Most of the critical stuff, those applications and/or mission-critical data that people have trepidation about, isn’t actually even covered by FedRAMP in its current incarnation. So it’s interesting to ask: How much does FedRAMP just ease the migration of low-hanging fruit vs. the stuff that actually costs the most to secure and maintain?”

away, except you may now have less visibility to the underpinnings of what makes some of that stuff happen.”

### A Work In Progress

As it is now, FedRAMP is still being tweaked and reworked.

“The focus on things like change control is wildly out of step and out of expectation with how quickly a cloud provider, by its very nature, can and does change to affect and deliver service,” says Hoff.

Thus, while Hoff expects FedRAMP to deploy pretty much as-is, he says it will be updated as they operationalize and get their first taste of people going through using FedRAMP as a process. ■

### Wait & Watch

As we go to press, the FedRAMP Web site says little about its timetable or when anything specific will be implemented, only that phase one is expected to be operational in Q1 of this year.

“From what I’ve heard, the first phase is going to be a pilot project in which a few cloud services are tested by a few federal agencies. I’ve heard rumors that a cloud-based email offering may be part of this,” says Luther Martin, chief security architect at Voltage Security ([www.voltage.com](http://www.voltage.com)). “I’ve heard nothing that I’d call definitive.”



SIX QUICK TIPS

# Obtain Funding For A Data Center Project

## Get Management Approval & Capture Incentives To Finance Your Upgrade

by Sixto Ortiz Jr.

• • •

A DATA CENTER PROJECT is an expensive proposition. So, it is important for IT personnel to make their case effectively and convincingly, especially when the time comes to seek funding from business management. This is especially true in these tough economic times, where budgets are tight and projects fiercely compete with each other for increasingly scarce funding. Thankfully, there are a number of good strategies IT personnel

can apply to secure funding for a data center project.

### Document The Savings

There is no better way to justify a project than to thoroughly document the ways in which the project adds to the bottom line. After all, top managers who don't want to dive into the gory details behind a data center project are only interested in knowing how much a project is going to cost and what kinds of savings will offset these costs.

## BONUS TIPS

■ **Get a business impact analysis.** A BIA can help administrators determine the costs of downtime and what the desired recovery point and objectives for the organization should be, says Matt Stamper, vice president of professional and managed

services at Castle Access ([www.castleaccess.com](http://www.castleaccess.com)). This analysis may result in significant justification for a new or enhanced data center.

■ **Find the business benefits.** Marilyn Weinstein, CEO of Vivo ([www.vivoinc.com](http://www.vivoinc.com)),

says the most important thing to understand before undergoing a data center project is to understand the underlying changes to the business. Any data center project, she says, should be business driven and should demonstrate why it will yield business benefits.

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The best way to do this is to tie the proposal to business requirements, drivers, and risks, says Michael Parish, managing director and vice president of consulting at Vivo ([www.vivoinc.com](http://www.vivoinc.com)). IT administrators need to properly scope their data center plans so they fit with what the business is going to need from the facility, he adds.

This process may also involve locating a business champion who will sponsor the project. However, this may also prove to be a challenge for IT personnel, who will need to sell their project more effectively than other operating groups seeking funding for their own projects. A helpful tactic is to review and understand the corporate strategic plan, so IT leaders can understand the business strategic direction and target the right groups for soliciting sponsorships, Parish says.

### To Build Or Not To Build?

Surprisingly, the case for a data center project may boil down to a simple decision: to build or outsource. Even though funding and building an in-house data center may seem like an attractive alternative, there is also a strong case for avoiding this substantial capital cost altogether.

"In only a handful of cases would it make sense to build an internal data center," says Matt Stamper, vice president of professional and managed services at Castle Access ([www.castleaccess.com](http://www.castleaccess.com)). The reason this is so, he adds, is the economies of scale in terms of infrastructure, access, and availability that enterprise data centers offer, which may be too compelling to ignore by company management. The use of an enterprise data center, Stamper says, eliminates significant capital expenses and reduces operational expenses, because customers only pay for a small fraction of the enterprise data center's overall operations.

Another reason, he adds, is the fact that today's regulatory environment requires that IT certify accurate transactions done by authorized personnel and ensure that they are properly protected via security measures. Using a third-party data center, he adds, can simplify compliance with the morass of regulations organizations face every day. ■

### Best Tip:

## Look For Double-Dip Incentives

Administrators exploring agency incentives for a data center project should be on the lookout for "double-dip" opportunities, says Jim Embley, CEO of Rubicon Professional Services ([www.rubiconps.com](http://www.rubiconps.com)). In many states, he adds, data centers can receive funding from two different agencies for the same site. For example, an organization can receive a new construction incentive from the local utility for the build-out of a suite and an energy efficiency incentive from a state agency for upgrading equipment.

### Most Practical Tip:

## IT Must Lead

Marilyn Weinstein, CEO of Vivo ([www.vivo inc.com](http://www.vivoinc.com)), says the IT team must lead the project, by implementing and managing the process, needs, and methodologies. IT must present the significance of the project and its capabilities to achieve business objectives to upper management. And, once management buy-in is secured, IT must be prepared to incur project management and administration costs.

For starters, administrators should offer at least a 50% savings and quantify that in hard currency, says Craig Nunes, director of marketing for HP's StorageWorks division. For example, replacing aging equipment with smaller amounts of new gear that's cheaper, consumes less energy, takes up less space, and requires a smaller number of people to manage is a good way to obtain corporate approval for a project, he says.

"By quantifying these savings in hard currency, even those who know little about IT will be quick to approve these requests and others like them," Nunes says.

Another way to demonstrate savings and pave the road for management funding is to offer guarantees for any savings or performance improvements delivered by the project. For example, Nunes says, vendors may sweeten the sale of new storage technology by guaranteeing a 50% capacity reduction.

### Capture Incentives

A straightforward way to capture savings for a data center project is to take advantage of energy incentives offered by various utilities. There are hundreds of millions of dollars of energy incentives available for the taking throughout the United States, says Jim Embley, CEO of Rubicon Professional Services ([www.rubiconps.com](http://www.rubiconps.com)). Administrators who want to locate such programs can consult the DSIRE (Database of State Incentives for Renewables and Efficiency; [www.dsireusa.org/](http://www.dsireusa.org/)). This database is run by the North Carolina Solar Center and the IREC (Interstate Renewable Energy Council) under the oversight of the U.S. Department of Energy.

There are several key items to keep in mind with regards to incentives. For example, Embley says, incentive agencies have to meet energy reduction goals and issue funding commensurate with the achievement of those goals. So, they are often audited by attorney general offices or public utility commissions throughout various states.

Administrators looking for incentives should also understand that each incentive body throughout the country has different initiatives, timelines, and funding amounts, with varying degrees of effort and documentation required by applicants. Examples of technologies for which incentives are provided include energy site assessments and installs of energy-efficient and demand response equipment, Embley says.

It is also critical to understand the timing and sequence involved in the various application stages. For example, Embley says, most agencies will disqualify funding if energy-efficient equipment is ordered prior to submitting the incentive application.

### Sell The Project

At first glance, convincing business management to fund a data center project may be tough for IT professionals who are usually confined to their technical silos and may not have a complete understanding of project business drivers. In other words, what should IT personnel do to effectively sell the case for a data center project to upper management?



USED & REFURBISHED EQUIPMENT SPOTLIGHT

# Counterfeit Concerns

Careful Shopping & Research Are Required To Sidestep Potential Problems

by Dan Heilman  
• • •

ALTHOUGH BUYING USED OR REFURBISHED equipment can be a great way to get good gear while keeping costs down, it can also be a treacherous experience thanks to counterfeiting. It's been reported that fake chips, routers, network modules, and other hardware cost the IT industry as much as \$100 billion per year, but there are ways to protect yourself and your company from getting bogus goods.

**Keep a close eye out.** Hardware equipment is especially at risk for counterfeiting, especially that with recognizable, higher-margin brand names. Because of the goodwill built up by those companies, counterfeiters don't mind investing more money into making good fakes, according to Joyce Tang, a principal consultant with CompTIA Security+ (www.comptia.org). "It's not as easy to spot these fakes, particularly if they're branded as refurbished and packaged in generic boxes or bulk plastic casings instead of original packaging," Tang says.

For those that are branded as new and are in their original packaging, Tang says, pay close attention to the quality of the printing and check for spelling errors. Typos and poor printing quality should be a hint.

**Know who you're dealing with.** Another reliable hedge against receiving counterfeit equipment is plain old leg-work: Researching distributors and retailers can go a long way in keeping from getting burned.

"Make sure you're buying from a reputable company that's been in business awhile," says Joshua Levitt, managing director of UsedCisco.com. "That might seem obvious, but you'd be surprised at how many companies don't do that bit of due diligence. Get references and make sure they stand behind their product, including warranties."

"Researching the reputation of the seller is [priority] No. 1," agrees Rob Holmes, CEO of IPCybercrime.com. "Most companies that sell refurbished equipment have an eBay store. The nice thing about those is that they're reputation-based. I've bought some refurb product for my business, and if a company has an eBay store, it gives you a chance to check out what customers think of them."

For the extra-cautious, however, steering clear of even a regulated but far from foolproof retail environment such as eBay might be worthwhile, says Levitt. "You can always report [counterfeit sales] to the authorities, but if you bought it on eBay or

someplace similar, you're buying at your own risk to an extent," he says.

**Know the risks and recourses.** Unfortunately for customers, in many cases there's little recourse once a counterfeit component has been discovered, aside from junking it and being more careful next time. You can still request a refund

from the vendor if the product's bogus status is detected early enough; if the vendor is an honest seller that unwittingly got stuck with bad gear, they will sometimes take the loss to keep your business.

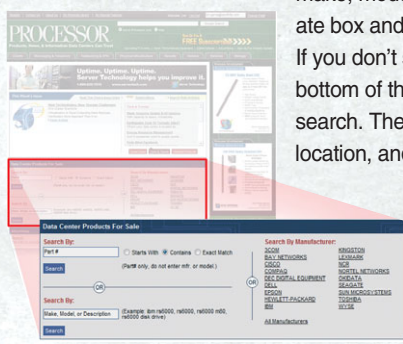
However, says Tang, it may be months before you may run into mysterious stability issues and degraded performance from a counterfeit piece of equipment. "Often times, they still don't know it's a fake," she says. "With low-volume purchases, there's almost hardly any recourse, [but] with high-volume purchases where the source of the counterfeiter or a retailer of counterfeit products can be traced, the FBI may then get involved." ■

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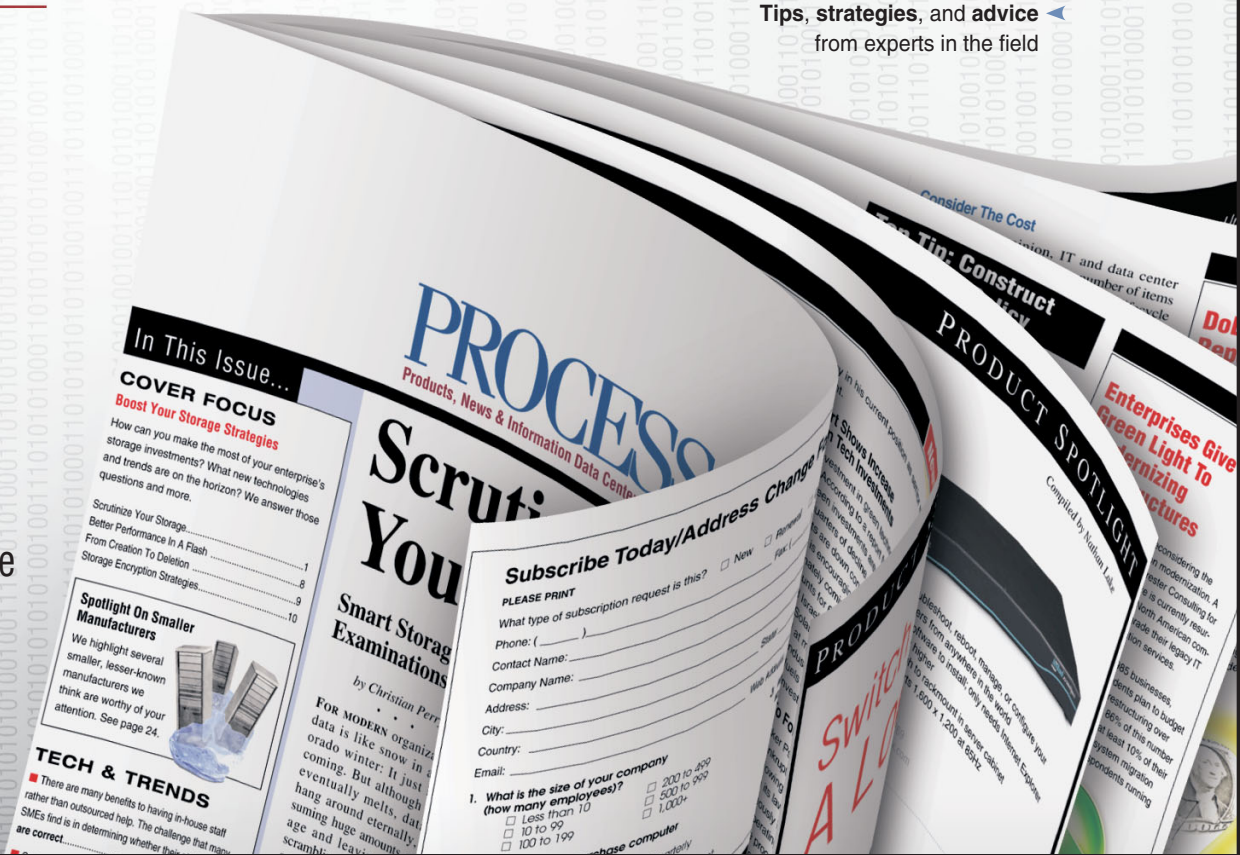
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- Metered power distribution
- Three-phase power distribution
- Energy management and control
- Switches

(888) 311-6277 | [www.cyberswitching.com](http://www.cyberswitching.com)

PHYSICAL INFRASTRUCTURE



Data Center Depot prides itself on providing the best selection, pricing, and support for data center products. Our diversified product line can meet the specific needs of data center managers responsible for virtually any type of corporate setup. We are a major manufacturer and also distribute the product lines for top companies in the industry. Most of our products are available via our online store, but we encourage you to contact us so we can help you find the right products for your requirements and budget.

**Products Sold:**

- Data cabinets, racks, and accessories
- LAN and NOC furniture
- Consoles and monitor walls
- Power supplies
- Cable ladders
- Patch panels
- Storage furniture

(877) 429-7225 | [www.DataCenterDepot.com](http://www.DataCenterDepot.com)

PHYSICAL INFRASTRUCTURE



Based in New York City, Hergo Ergonomic Support Systems is an independent designer and manufacturer of enclosure cabinet solutions, technical computer furniture, and modular racking systems. The company's products are designed to promote organization in the workspace and to increase the productivity of computers, peripherals, and communications equipment. Hergo is known for its high-quality products and superior customer service.

**Products Sold:**

- Racks
- Enclosures/cabinets
- Motorized workstations
- Flat-panel arms
- Computer desks
- Cable management
- Power management

(888) 222-7270 | [www.hergo.com](http://www.hergo.com)

PHYSICAL INFRASTRUCTURE



Claytek, part of iStarUSA Group, is a leading provider of server cabinets, racks, and related accessories. Since its founding in 2005, Claytek has grown tremendously because of reliable and innovative design and product quality. In addition, customers find that Claytek offers some of the most affordable solutions the market has to offer.

**Products Sold:**

- Cabinet enclosures
- Wallmount solutions
- Open-frame racks
- Special applications
- Rack- and cabinet-related accessories

(626) 303-8885 | [www.istarusa.com](http://www.istarusa.com)

PHYSICAL INFRASTRUCTURE




ITWatchDogs manufactures environmental monitors that help prevent downtime from climate- and power-related issues. Its Web-enabled monitors let users keep an eye on remote conditions from a secure Web interface and receive SNMP, email, SMS and voice call alerts when specified alarm thresholds are exceeded for external factors, including temperature, humidity, airflow, power failure, smoke, water detection, and more.

**Products Sold:**

- Climate monitors
- Power monitors
- Digital and analog sensors
- IP surveillance cameras

(512) 257-1462 | [sales@itwatchdogs.com](mailto:sales@itwatchdogs.com) | [www.itwatchdogs.com](http://www.itwatchdogs.com)

PHYSICAL INFRASTRUCTURE




Established in 2008, PDUsDirect.com is an online wholesaler providing a select line of PDUs for server and networked environments. PDUs Direct's basic, metered, and switched Rack PDUs provide local and remote power management, power monitoring, and environmental monitoring. We pride ourselves in offering industrial-grade quality products at the lowest prices, with the fastest shipping (most orders shipped within 24 hours) and simplest purchase process.

**Products Sold:**

A complete line of 20A PDUs, including metered, basic, and switched.

(888) 751-7387 | [pdusdirect.com](http://pdusdirect.com)

PHYSICAL INFRASTRUCTURE



Power Assure helps enterprises, government agencies, and managed service providers gain the insight, knowledge, and automated control necessary to improve data center capacity, service levels, and power usage. The company counts ABB, Dell, IBM, Raritan, and VMware as partners.


**Products Sold:**

Dynamic Power Management & Optimization software that replaces "always-on" data center operations with a more efficient "on-demand" model aimed at cutting power consumption by 50 to 60%.

(408) 980-1900 | [www.powerassure.com](http://www.powerassure.com)



PHYSICAL INFRASTRUCTURE



**RACKMOUNT SOLUTIONS, Ltd**  
where customer service matters

Rackmount Solutions’ mission is to listen to the IT engineer’s specific needs and deliver superb-quality, high-performance products through continuous product innovation and operational excellence. We pride ourselves in providing quality customer service, products that fit your IT requirements, and solid value for your money.

**Products Sold:**

- Wallmount and server racks and cabinets, including sound proof, air conditioned, and large cable bundle
- Desktop/tabletop portable racks
- Shockmount shipping cases
- Bulk cable

(866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

PHYSICAL INFRASTRUCTURE



**SENSAPHONE®**  
REMOTE MONITORING SOLUTIONS

Sensaphone has been designing and manufacturing remote monitoring systems for more than 25 years and has more than 300,000 of its products in use. Sensaphone’s product lineup offers a full range of devices with a broad number of features and applications designed to monitor your entire infrastructure and alert you to changes. All product engineering functions, including hardware and software design and circuit board layout and assembly, are performed at the Sensaphone facility in Aston, Penn.

**Products Sold:**

- Remote monitoring solutions that provide email and voice alarm notification for problems related to temperature, humidity, water detection, power failure, and more.

(877) 373-2700 | [www.sensaphone.com](http://www.sensaphone.com)

PHYSICAL INFRASTRUCTURE



**Server Technology**  
Solutions for the Data Center Equipment Cabinet


Server Technology is committed to the PDU market with the largest group of engineers dedicated to power distribution and other solutions within the equipment cabinet. Advancements in device power monitoring help data centers monitor and improve their efficiency, and continuous research and development is fueled by companies that look to Server Technology for their custom cabinet power solutions.

**Products Sold:**

A complete line of cabinet PDUs, including Per Outlet Power Sensing (POPS), Rack Mount Fail-Safe Transfer Switch, Console Port access with remote power management, Switched, Smart, Metered, Basic, and -48 VDC

(800) 835-1515 | [www.servertech.com](http://www.servertech.com)

NETWORKING & VPN



**logicMonitor**  
monitoring that matters

LogicMonitor provides a hosted IT monitoring system designed to eliminate the complex and time-consuming configuration that other monitoring systems require. Built by veteran data center managers, the hosted solution provides monitoring and 24/7 alerting for networks, servers, applications, and storage—all from one console—with just 30 minutes of setup.

**Products Sold:**

- LogicMonitor hosted IT monitoring for physical, virtual, and cloud environments.

(888) 41LOGIC | [www.LogicMonitor.com](http://www.LogicMonitor.com)

NETWORKING & VPN



**runaware™**

Founded in 1999, Runaware™ is a leader in online software demo solutions and cloud computing initiatives. Runaware’s TestDrive® consists of a suite of services, including all aspects of online marketing, customer profiling, lead capture, downloads, trial CDs, and a hosted interactive online demo environment. Runaware’s Cloud Platform offerings let clients experiment and evaluate SaaS and PaaS using their own application without requiring any modifications.

**Products Sold:**

- TestDrive: Online demo solution
- TestDrive Insight: Demo recording analysis
- Runaware in the Clouds: Cloud platform offering

(954) 302-5340 | [www.runaware.com](http://www.runaware.com)

STORAGE



**ESS Data Recovery**  
[www.datarecovery.com](http://www.datarecovery.com)  
real labs, real people,  
**REAL RECOVERY**


DataRecovery.com (formerly ESS Data Recovery) was formed in 1996 as one of the first data recovery companies in the world. We have labs in Minnesota, Illinois, California, and Ontario, Canada, that service thousands of customers worldwide. We can work with almost any storage device, including large RAID arrays, data tapes, and any brand of hard drive.

**Services Offered:**

A complete line of data recovery services, including online backup, tape duplication, and secure data erasure.

(800) 237-4200 | [www.datarecovery.com](http://www.datarecovery.com)

STORAGE



**SECURE MDE**  
MOBILE DATA ELIMINATION

Secure MDE offers clients a mobile data elimination service, destroying hard drives and other media at customers’ locations. The company’s self-contained, high-capacity Secure Shark™ can be deployed at any facility across the country and is capable of shredding up to 1,000 hard drives an hour. Secure MDE is a subsidiary of Luminous Recycling, a leader in computer and electronics recycling. Luminous recycles 10 million pounds of electronic scrap annually.

**Services Offered:**

- High-capacity destruction of hard drives and other sensitive data

(888) 312-2333 | [www.securemde.com](http://www.securemde.com)

SERVERS



**SUPERMICRO®**


When buying a server, you don’t want a one-size-fits-all solution. Supermicro uses modular and interoperable Server Building Blocks to offer the highest levels of flexibility and customization possible to design servers tailored and optimized for your specific needs. Supermicro’s focus on green computing leadership, system design expertise, and power-saving technologies ensures the products you purchase are energy-efficient and application-optimized.

**Products Sold:**

- Servers
- Networking
- Motherboards
- Storage
- Chassis

(408) 503-8000 | [www.supermicro.com](http://www.supermicro.com)

CLIENTS



**CHENBRO**


Chenbro is a leader in enclosure solutions, selling its products primarily to system integrators and OEM and channel partners. The company’s extensive research and development efforts help it to keep its competitive edge and maintain market leadership, with special focus on thermal, EMI, and acoustic solutions. Taiwan-based Chenbro has offices in the United States, UK, The Netherlands, and China.

**Products Sold:**

- A comprehensive line of PC chassis, server/workstation chassis, rackmount chassis, and HDD enclosures.

(909) 947-3200 | [www.chenbro.com](http://www.chenbro.com)

CLIENTS



**dtSearch®**  
[www.dtsearch.com](http://www.dtsearch.com)

Maryland-based dtSearch started research and development in text retrieval in 1988. The company is known for speedy adoption of new programming standards, OSes, and file types. Plus, it has a flexible licensing model. Typical corporate use of dtSearch includes general information retrieval, Internet and intranet site searching, and email archiving and email filtering.


**Products Sold:**

Text retrieval products, including:

- Desktop With Spider
- Web With Spider
- Network With Spider
- Engine For Win & .NET
- Publish For CD/DVDs
- Engine For Linux

(800) 483-4637 | [www.dtsearch.com](http://www.dtsearch.com)

CLIENTS



**Giada**  
Tech · Fashion · Art


Giada Technology is a San Francisco, Calif.,-based PC and hardware retailer that specializes in mini PCs, motherboards, netbooks, graphics cards, and other computer hardware and peripherals. Giada has additional offices in both Shenzhen and Hong Kong, China, and distributes its products through Amazon, Polywell, ASI, MA Labs, and Newegg.

**Products Sold:**

- Ultra mini PCs
- Motherboards
- Netbooks
- Graphics cards

(415) 202-5441 | [www.giadapc.com](http://www.giadapc.com)

EQUIPMENT DEALER



**PC M**

In 1987, Pegasus Computer Marketing started providing mainframe products to the end-user market. What began as a sales-only organization soon adapted to offer in-house repair and refurbishment. During the past 10 years, Pegasus has focused primarily on the point-of-sale and barcode industries, buying, selling, and providing service contracts for anywhere from a few scanners to hundreds.

**Products Sold:**

We buy, sell, and service:

- Point-Of-Sale Equipment and POS/PC Flat Panels
- Wired and Wireless Barcode Hardware
- Kronos Time Clocks and Accessories

(800) 856-2111 | [www.pegasuscomputer.net](http://www.pegasuscomputer.net)



Twenty years have come and gone,  
and **Hergo** is still **THE** reliable **source** for  
computer workspace solutions.



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